Occult Chemistry

Investigations by Clairvoyant Magnification into the Structure of the Atoms of the Periodic Table and Some Compounds

Contents: The Nature of Matter; The Hydrogen, Spike, Dumb-bell, Tetrahedron, Cube, Octahedron, Bars, and Star Groups; Compounds; Catalysis, Crystallization; Conclusion; Analysis of the Structure of the Elements; Table of Atomic Weights; Notes and Reports of Certain of the Investigations; Index; Illustrated.

C.W. Leadbeater

&

Annie Besant

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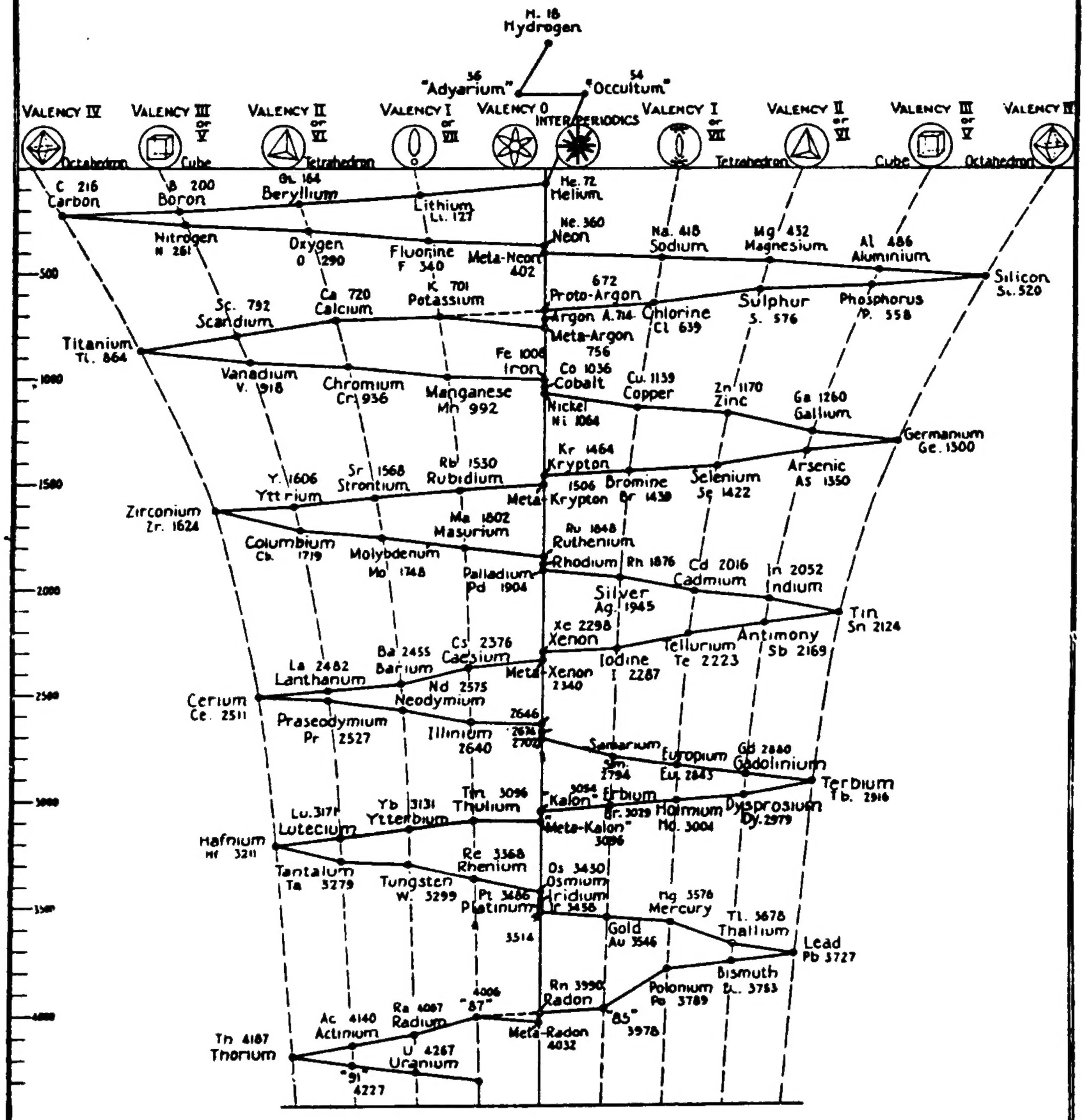
With 230 Illustrations

THE PERIODIC LAW
(after Crookes)



The number affixed to an element is the number of "Anu" (the ultimate physical particles of which matter is constituted) which compose the element.

Isotopes are not given.

Elements not yet discovered by chemists :- 36, 54, 2646, 2674, 3054 - 3096.

The Theosophical Society
Adyar, Madras, India
May 6, 1933

INTRODUCTION TO THE THIRD EDITION

BY C. JINARĀJADĀSA

THIS work contains a record of clairvoyant investigations into the structure of matter. The observations were carried out at intervals over a period of nearly forty years, the first in August 1895 and the last in October 1933. The two investigators, Annie Besant (1847-1933) and C. W. Leadbeater (1847-1934) were trained clairvoyants and well equipped to check and supplement each other's work.

Method of Investigation: The method is unique and difficult to explain. Many have heard of the word "clairvoyance" (clear-seeing), connoting the cognition of sights and sounds not perceived by ordinary people. In India the term *Yoga* is sometimes related to faculties that are beyond ordinary cognition. It is stated in Indian Yoga that one who has trained himself "can make himself infinitesimally small at will". This does not mean that he undergoes a diminution in bodily size, but only that, *relatively*, his conception of himself can be so minimized that objects which normally are small appear to him as large. The two investigators had been trained by their Eastern Gurus or Teachers to exercise this unique faculty of Yoga, so that when they observed a chemical atom it appeared to their vision as highly magnified.

When using this method the investigator is awake and not in any form of trance. He employs his usual faculties for recording what he observes; he maps out on a piece of paper a sketch of what he sees and may describe his impressions so that a stenographer can take down his remarks. Just as a microscopist, looking into the microscope and without removing his eyes from the slide, can describe what he observes so that it can be recorded, so the clairvoyant investigator watching an atom or molecule can describe what he sees in front of him. What he sees is not subjective, in the sense that it is a creation of the imagination; it is as objective as is the paper on which I am writing this and the pen which I use.

The object examined, whether an atom or a compound, is seen exactly as it exists normally, that is to say, it is not under any stress caused by an electric or magnetic field. As each object is in rapid motion, the only force brought to bear on it is a special form of will-power, so as to make its movement slow enough to observe the details.

The earliest investigations were made in England in 1895. The first atoms observed were four gases in the air, Hydrogen, Oxygen, Nitrogen, and a fourth gas (atomic weight=3) so far not discovered by chemists. The atoms do not carry their own labels and the first problem was that of identification. Most active of the four gases was one which the investigators considered was probably Oxygen. A somewhat lethargic gas was thought to be Nitrogen. The lightest of all four was

taken to be Hydrogen. But it was only after the fullest examination of the constituent parts of each gas (for each so-called "atom," the "un-cut-able," was found to be composed of smaller units) that finality was achieved regarding the identity of the gases. Hydrogen was found to be composed of 18 units; Nitrogen of 261; Oxygen of 290; and the fourth gas of 54. The weight of Hydrogen, composed of 18 units, was taken as atomic weight 1 (one), and the number of units in Oxygen and Nitrogen was divided by 18. The results agreed closely with the atomic weights given in textbooks and hence the gases were accepted as Hydrogen, Nitrogen and Oxygen. The atoms of these elements were never observed to move in pairs except in Deuterium. The fourth gas with atomic weight 3 was thought to be Helium, of which much had been said in the newspapers of 1894, following its discovery by Ramsay. It was only when the atomic weight of Helium was finally announced as 4, that the gas observed with weight 3 was realized as obviously a different gas. Later it was given the name of *Occultum*.

Diagrams and detailed descriptions of the internal structure of the atoms of Hydrogen, Oxygen and Nitrogen and of the *ultimate atoms*, or *Anu*, of which all the elements are composed, were first published in *Lucifer*, London, November 1895.

Work was resumed in 1907 when 59 more elements were observed.

When the element to be examined exists in a pure, easily obtainable state, as for example the elements Sulphur, Iron and Mercury, there was no difficulty as to the identification, even before mapping its structure. But a difficulty arose in the case of Lithium and other elements. A request for specimens of these elements was made to Sir William Crookes, a friend of both the investigators, and a member for some years of the Theosophical Society. He replied on July 18, 1907 to the mutual friend in London who contacted him, "Leadbeater's requirements constitute a large order. Of the list of requirements he sends I can give metallic Lithium, Chromium, Selenium, Titanium, Vanadium and Boron. Beryllium I can give him as an oxide. But Scandium, Gallium, Rubidium and Germanium are almost impossible to get, except perhaps in a very impure state."

It was then found by the investigators that it was not essential for the purpose of investigation to have an element unmixed or uncombined with any other element. In many compounds, the constituent atoms do not exist in juxtaposition, each retaining its atomic individuality, as is the theory in chemistry. Each atom breaks up into smaller parts and unites its parts with similar broken-up parts of the other atom or atoms, as the fingers of the right and left hands can interlock. In salt, Sodium and Chlorine are interblended in such a manner as to give to the compound the outline of a cube. By the exercise of will-power, the force holding the parts together as a molecule can be nullified; in such a case, the separated parts of each atom instantly group themselves as the atom was before combination. When, therefore, a salt molecule was "broken up," the parts composing Sodium came together, as the atom of Sodium; similarly the parts of Chlorine united to form a Chlorine atom.

As the investigations developed, many atoms were thus examined. The two investigators were spending a summer holiday at Weisser-Hirsch, near Dresden in Germany. My task was to record and draw diagrams of the elements as they were mapped out. There was in the city of Dresden an excellent museum, one section being devoted to minerals. I made a list of the wanted elements as they existed as compounds;

this could be obtained by consulting an encyclopaedia. I went with the list to the Dresden Museum, and noted down in which of the show-cases the elements needed existed as compounds. Soon after my return, C. W. Leadbeater and I went to Dresden and I showed him the minerals I had noted. He examined them quickly and obtained a picture of the complex configuration of the mineral in which existed the element he needed. After returning to Weisser-Hirsch he was able at leisure to evoke by clairvoyance the picture he had seen at Dresden. Exercising, then, his will-power on a mineral molecule, he dissolved the complex structure. On so doing, the separated parts of each atom united and formed an individual unit. Thus the pure element which he desired was before him for examination and for drawing. As each element was mapped and drawn the rough diagram of it was passed on to me, to draw carefully the essential parts of the element (for final half-tone line block), to count the units in it, divide the number by 18 (the number of units in Hydrogen), and to see how near our weights came to the weights given in the latest book on Chemistry.

During the investigations at Weisser-Hirsch in 1907, 59 elements (*not counting several isotopes observed*) were drawn by me. These were printed month by month in the magazine *The Theosophist*, published at Adyar, a suburb of Madras, beginning with the issue of January 1908.

In 1907 three unrecorded elements were described, to which the provisional names Occultum, Kalon and Platinum B were given, also a new group of three inter-periodics labelled X, Y and Z. Observations of Radium, with a diagram, were made at Adyar in 1908. The diagram was sent to me when I was in the United States, and there I drew the diagram which appeared in *The Theosophist* for December 1908.

The diagrams of all these elements were drawn by me and appeared in the first edition of *Occult Chemistry* published in 1909, which also included the article on *The Ether of Space.*

In 1909, the work was resumed by Mr. Leadbeater at the Headquarters of the Theosophical Society at Adyar, Madras. Twenty more elements were mapped out. The rough drafts of drawings were made but they were not published, though a general description was given in *The Theosophist* of July 1909. Three more unrecorded elements and an isotope of Mercury are described there.

In 1919 in Sydney, Australia, the first compounds, salt and water, were investigated and very rough models made.

A second edition of *Occult Chemistry* was issued in 1919, but it contained no additional matter and gave no record of any work after 1907. Mr. A. P. Sinnett, who edited this second edition, merely wrote an introduction.

In 1922 the work was again resumed in Sydney and descriptions of compounds were then given for the first time. Water and salt had been examined in 1919, but no diagrams drawn. Then in 1922 they were examined again and diagrams drawn, and several other compounds were examined, all of which were published in *The Theosophist*, March, April, August 1924; March, April, August, September, October 1925; July 1926. Some Carbon compounds of the chain and ring series were among those examined. A complicated structure investigated was the diamond, composed of 594 Carbon atoms. A model was made in Sydney and sent to me in India. A description of the structure and a photograph of the

model appeared in *The Theosophist*, September 1925. Hafnium was described in 1928 and Rhenium in 1931.

After C. W. Leadbeater came to Adyar in 1930 such remaining elements of the Periodic Table, which had not been previously investigated, were mapped out by him.

In 1932 and 1933 more material was published in *The Theosophist*. This included a description of elements 85, 87 and 91 and a list of atomic weights. An element of atomic weight 2 was reported in 1932, and given the name Adyarium, as the discovery was made at Adyar, Madras.

In this *Third Edition* the results of the later researches have been incorporated. All the material has been carefully revised and checked with the original drawings at Adyar. New diagrams have been made where necessary and the whole has been rearranged so as to display the facts more clearly.

In any scientific work progress continues and a text book needs amendments to bring it up to date in accordance with later discoveries. This third edition contains such necessary additions and corrections and represents as accurately as possible the material at present available.

Diagrams and descriptions, hitherto unpublished, of thirty compounds, are here included, as well as all the material published in *The Theosophist*.

This third edition is in three parts, Part I being the general introduction, Part II a detailed study of all the elements, and Part III containing all the information available concerning the combination of the elements into compounds.

From the material the following facts emerge :

The unit of matter. It was noted in 1895 that Hydrogen, the lightest atom, was not a unity, but was composed of 18 smaller units. Each such unit was then called an "ultimate physical atom". Some thirty years later it seemed simpler to use the Sanskrit term for this ultimate particle of matter; the word is "Anu," pronounced as in Italian, or in English as "ahnoo." The word Anu does not add "s" to make the plural but remains unchanged. The investigators knew no way of measuring the size of an Anu. The only difference found was that the Anu existed in two varieties, positive and negative, and that in their formation the spirals wound themselves in opposite directions. Thus, each negative Anu was a looking-glass image of the positive Anu. There was no investigation made as to the nature of positive and negative.

There are at least 100 chemical elements, not counting isotopes. Clairvoyant research in 1907 described a neutral gas, Kalon, heavier than Xenon and lighter than Radon. Two elements, called here Adyarium and Occultum, have their place in the Periodic Table between Hydrogen and Helium. The diagram of Occultum had been drawn in 1896; it was drawn again in 1909. There is among the rare earths a group of three minerals forming a new inter-periodic group. These were found in 1909 in pitchblende, which I sent from U. S. A. to Mr. Leadbeater, and their weights published. In 1907 a fourth member of the Platinum group was found and called Platinum B. Elements "87" and "91" were described.

Isotopes were seen and described as early as 1907. Some elements have a variety which is not a true isotope, since it differs in internal arrangement only, and not in weight. It was in 1913 that Soddy coined the term "isotope"; he had suggested in 1910

that atoms of the same chemical element might possess different mass. In 1907, during the clairvoyant investigations at Weisser-Hirsch, some isotopes were found; the investigators used the term "meta" to denote the second variety of the element. The first noted was the inert gas Neon, with atomic weight 20 (H=1); the second variety of Neon, labelled Meta-Neon, had the weight 22.33 (H=1). Then it was found that Argon, Krypton, and Xenon each had an isotope. At the same time a still heavier inert gas was found, for which the label Kalon was coined, and an Isotope, Meta-Kalon. Each meta variety or isotope of the inert gases has 42 Anu more than the element which bears the name. A variety of Argon lighter than that recorded in chemistry was found and named Proto-Argon.

There was found in the third interperiodic group a second variety or isotope of Platinum. We labelled the normal variety Platinum A, and the isotope Platinum B. The diagrams of both varieties were drawn by me in Weisser-Hirsch and published in *The Theosophist*. In the issue of July 1909, an isotope of Mercury is mentioned, especially notable for the fact that it is solid.

External Shapes. The elements have definite shapes. With a few exceptions all the elements fall into 7 groups or forms: the groups were named Spikes, Dumb-bell, Tetrahedron, Cube, Octahedron, Crossed-bars, Star.

Valency can be subdivided, that is to say an atom with valency 1 can divide itself into two halves each exercising $\frac{1}{2}$ valency. Hydrogen divides itself into 2 or 6 parts each with $\frac{1}{2}$ or $\frac{1}{6}$ valency, when it enters into combinations. Similarly, elements having valencies 2, 3 or 4 can subdivide. The valency has some connection with the shape. Divalent elements are predominently tetrahedra, trivalent elements cubes, and quadrivalent octahedra.

When one element combines with another the atoms almost always break up. The combination is not of one atom with another as a whole, but the component parts are re-arranged to form a complex structure.

Periodic Law. Of all the diagrams stating the Periodic Law, we have found that of Sir William Crookes the simplest and the most descriptive of the facts observed. His reasons for a diagram depicting a pendulum swing were given by him in a lecture at the Royal Institution, London, on February 18, 1887 and published by him later. We use a slightly amended form of this pendulum diagram.

The ultimate physical atom. All the elements are found to be built up from units called in the early editions the ultimate physical atom, and to which the name *Anu* has since been given.

Weights. The weights given in the tables are all in terms of Hydrogen. We take Hydrogen=18 Anu as our standard and equal to 1. The relation between our weights and that of the International Tables can be found by adjusting our weights to the standard of H=1.0078.

Of course it was seen at once that the investigations made into the structure of the chemical elements and into a few molecular compounds were nothing more than the scratching of the surface of an enormous sphere. The number of problems that arose and the questions that might be asked are innumerable, but the two investigators led very busy lives, as lecturers and authors, and the researches into Occult Chemistry were only

incidental in their very heavy, labours in the field of Theosophy. While both were willing, when time permitted, to do further investigations, it was impossible to get the time and isolation necessary for concentration for clairvoyant magnification. The two investigators and the recorder were frequently in different countries of the world, busy at their work of Theosophical propaganda, and it was rarely that all three met together for any considerable period.

Throughout the investigations, from the beginning to the end, my role was that of recorder.

It has often been asked whether the Anu is the electron. The answer is definitely, *No*. What it is remains to be determined.

A further question raised has been regarding the relation which these investigations have to the discoveries of physicists. At the moment, no relation can be found. I am reminded here of what happens when a new tunnel is to be pierced through a mountain. Two sets of engineers, with carefully triangulated plans, begin, one at either side of the mountain range, to cut through the mountain. Slowly they come nearer and nearer, till the partition separating them is so thin that the hammering from one side can be heard by the other. In the case of one tunnel that was built, the displacement between the two tunnels at the meeting point was only about one foot. Similarly, the occult investigators and the physicists are working from two sides of a great range. I feel sure that some day in the future they will meet. It must be remembered that the results of the physicists' researches have been from reading of spectroscopic records. The work that has been done is so wonderful in technique that out of the lines of the spectrum new elements can be located and their atomic weight deduced. Work such as Aston's mass spectroscopy, requires magnetic forces to be brought to bear upon the atom. As already mentioned no force except that of will-power is used by the occult investigator.

The recording of the two methods is not dissimilar to two photographs which might have been taken of Piccadilly Circus in London during the war. From five chief avenues of traffic vehicles are passing in various directions. If a photograph were to be taken there would not only be the picture of crowds of vehicles but also of pedestrians. This would be the state of Piccadilly Circus in normal times. But when an air raid alert is sounded, immediately everybody takes shelter and the only objects that might be found to be photographed would be fire engines, ambulances, the police and fire fighters. The second photograph would not be Piccadilly Circus in a normal condition. Similarly, the photographs of electrically excited atoms are not photographs of atoms under normal conditions. Nevertheless, the constituents of the atoms behave in such a regular fashion that the lines of the spectrum can be disentangled as characteristic of one atom, rather than that of another.

During the course of the many long years that I have been connected with *Occult Chemistry* as recorder, as I studied each new atom as it was mapped out, I have been profoundly impressed by two ideas: one, ingenuity, and the second, beauty. I have been strongly reminded of the maxim of the Platonic School: "God geometrizes". If, as they propounded, the universe is the result of the action of a Demiurge, "the Fashioner," then it is obvious that the Demiurge is not only a Great Architect of the Universe, but also a Grand Geometrician. For in some manner or other, whether

obvious or hidden, there seems to be a geometric basis to every object in the universe.

It is apparent from the diagrams in this work that the main thesis of Crookes of a "Genesis of the Elements" is borne out, since in a particular family the heavier element is built after what might be termed a pre-fixed model. It is in this slow building up that there appears what we can only term the working of a Divine Mind that introduces some incalculable factor for a heavier element. After I had drawn the diagrams of Iron, Cobalt and Nickel; Ruthenium, Rhodium and Palladium; Osmium, Iridium and Platinum; I could not help feeling that in the gap between the second and third groups in the Periodic Table there must exist another inter-periodic Group among what are known as the "rare earths". Working from the diagrams before me, I reconstructed theoretical diagrams for the missing group. This was in 1908. Later when I sent some minerals to Mr. Leadbeater from Montana, U. S. A., he found the missing inter-periodic Group. In my theorizing I gave for the new groups the weight of each "bar" as 185, 187 and 189. When the missing group was found, the weights were found to be 189, 191 and 193. In my diagram I had not calculated for something unexpected, which the Demiurge would do in constructing the new elements. All throughout it is this sudden emergence of a new idea from the mind of the Demiurge that is of the utmost fascination.

I have long desired complete leisure to construct a large circular room, on the walls of which would be placed enormously amplified diagrams of each element. Then, sitting in the middle on a revolving seat, I should like to meditate upon the diagrams before me, for I would then come into touch with the operations of the Divine Mind, which the Greeks postulated as not only Truth, but also Goodness and Beauty.

As a result of fifty-five years of pondering over the diagrams in *Occult Chemistry*, my mind has sought correlations with other natural objects. I have minerals showing the five Platonic solids in their structure. Why should a mineral, composed of diverse atoms, crystallizing under heat and pressure perhaps two thousand millions of years ago, crystallize into tetrahedra, cubes, octahedra, dodecahedra or icosahedra? Was it because in some unexplainable way the "form" or root-base of the mineral-to-be was influenced by the Platonic solids structure inherent in all the elements, with the exception of very few? When we see a dandelion in flower, the blossom is flat; when the flower has been fertilized and produces its seeds, why are the seeds arranged as a sphere? Many a time when noting such spherical seed-balls, my mind has pictured the sphere at the centre of Radium. There is a weed growing on Adyar Beach, which helps to hold the sand from drifting; it creeps to long lengths, and presently produces a seed-cluster like a stiff brush. We can separate the seeds and count their number, over one hundred. But why that particular number? Throughout the vegetable kingdom, geometrical forms appear in one form or another. But why? Of course, it is not for the strictly "scientific" mind to ask these questions. Yet did not Jeans say, "from the intrinsic evidence of His creation, the Great Architect of the Universe now begins to appear as a pure mathematician". And again, "the motions of electrons and atoms do not resemble those of the parts of a locomotive so much as those of the dancers in a cotillion".

When all is said and done, "Occult Chemistry," with its geometrical basic structures, is the source of all substances, and of all organisms built of those substances. A

day will come when a great synthesizer endowed with high mathematical and imaginative gifts will link physics and chemistry to the vegetable and animal kingdoms, and so to the human. Shall we then have a far-away glimpse of the Demiurge, the Fashioner, who builds in Beauty for everlasting ?

C. JINARĀJADĀSA

November 17, 1950.

NOTE

Nearly all the diagrams have been redrawn during the last three years, under the supervision of Miss Elizabeth W. Preston, who has been in touch with the work of *Occult Chemistry* for the last twenty years. I have put her in complete charge of the shaping of this Third Edition, and I desire to express to her my deepest obligation, since I am unable, with my heavy tasks as President of the Theosophical Society, to give adequate attention to supervision of the work myself.

C. J.

CHAPTER I

THE NATURE OF MATTER

AN article, bearing the title *Occult Chemistry*, appeared in *Lucifer*, November 1895, and was reprinted as a separate pamphlet in 1905. In that article three chemical elements, Hydrogen, Oxygen and Nitrogen, were clairvoyantly examined, and their analyses were presented tentatively to the public. The work was done by Mr. Leadbeater and myself. The pressing nature of our other labours prevented further investigation at the time, but we have, however, lately (1907) had the opportunity of pursuing these researches further, and as a considerable amount of work has been done, it seems worth while, still tentatively, to report the observations made. Certain principles seem to emerge from the mass of details, and it is possible that readers, who are better versed in chemistry than ourselves, may see suggestions to which we are blind. An observer's duty is to state clearly his observations; it is for others to judge of their value, and to decide whether they indicate lines of research that may be profitably followed up by scientists.

The drawings of the elements (in the first edition) were done by two Theosophical artists, Herr Hecker and Mrs. M. L. Kirby, whom we sincerely thank; the diagrams, showing the details of the construction of each element, we owe to the most painstaking labour of Mr. Jinarâjadâsa, without whose aid it would have been impossible for us to have presented clearly and definitely the complicated arrangements by which the chemical elements are built up. We have also to thank him for a number of most useful notes, implying much careful research, which are incorporated in the present series, and without which we could not have written these papers. Lastly, we have to thank Sir William Crookes for kindly lending his diagram of the grouping of the elements, showing them as arranged on successive "figures of eight," a grouping which, as will be seen, receives much support from clairvoyant observations.

As we study these complex arrangements, we realize the truth of the old Platonic idea that the LOGOS geometrizes; and we recall H. P. Blavatsky's statement that nature ever builds by form and number.

The physical world is regarded (1895) as being composed of between sixty and seventy chemical elements, aggregated into an infinite variety of combinations. These combinations fall under the three main heads of solids, liquids and gases, the recognized substates of physical matter, with the theoretical ether (Aether of space) scarcely admitted as material. It would not be allowed (by scientists) that gold could be raised to the etheric condition as it might be to the liquid and gaseous. The clairvoyant

finds that the gaseous is succeeded by the etheric state, as the solid is succeeded by the liquid. The etheric state is found to cover four substates, as distinct from each other as are solids, liquids and gases. All chemical elements have their four etheric substates, which, with the solid, liquid, and gaseous, give us seven substates of matter in the physical world.

The method by which these four etheric substates were studied consisted in taking what is called by chemists an atom of an element and breaking it up, time after time, until what proved to be the ultimate physical unit was reached.

HYDROGEN

The first chemical atom selected for examination was an atom of Hydrogen (H). On looking carefully at it, it was seen to consist of six small bodies, contained in an egg-like form, Fig. 1. It rotated with great rapidity on it own axis, vibrating at the same time, the internal bodies performing similar gyrations. The whole atom spins and quivers and has to be steadied before exact observation is possible. The six little bodies are arranged in two sets of three, forming two triangles that are not interchangeable. The lines in the diagram of the atom on the gaseous sub-plane, Fig 1, are not lines of force, but show the two triangles ; on a plane surface the interpenetration of the triangles cannot be clearly indicated. The six bodies are not all alike ; they each contain three smaller bodies—each of these being an ultimate physical atom or Anu. In two of them the three Anu are arranged in a line, while in the remaining four they are arranged in a triangle.

The first thing that happens on removing a gaseous atom from its 'hole' or encircling 'wall,' is that the contained bodies are set free, and, evidently released from tremendous pressure, assume spherical or ovoid forms, the Anu within each re-arranging themselves, more or less, within the new 'hole' or 'wall'. The figures are, of course, three-dimensional, and often remind one of crystals ; tetrahedra, octahedra, and other like forms being of constant occurrence.

It is, of course, impossible to convey in words the clear conceptions that are gained by direct vision of the objects of study, and Fig. 2 is offered as a substitute, however poor, for the lacking vision of the readers. The horizontal lines separate from each other the seven substates of matter ; solid, liquid, gas, ether 4, ether 3, ether 2, ether 1. The successive changes undergone by the Hydrogen atom are shown in the compartments vertically above it. It must be remembered that the bodies shown diagrammatically in no way indicate relative size ; as a body is raised from one substate to the one immediately above it, it is enormously magnified for the purpose of investigation.

When the gaseous atom of Hydrogen is raised to the E4 level the wall of the limiting spheroid in which the bodies are enclosed, being composed of the matter of the gaseous kind, drops away and the six bodies are set free. They at once re-arrange themselves in two triangles, each enclosed by a limiting sphere ; one sphere having a positive character, the other being negative. These form the Hydrogen particles of the lowest etheric plane, marked E4 (ether 4) in Fig. 2.

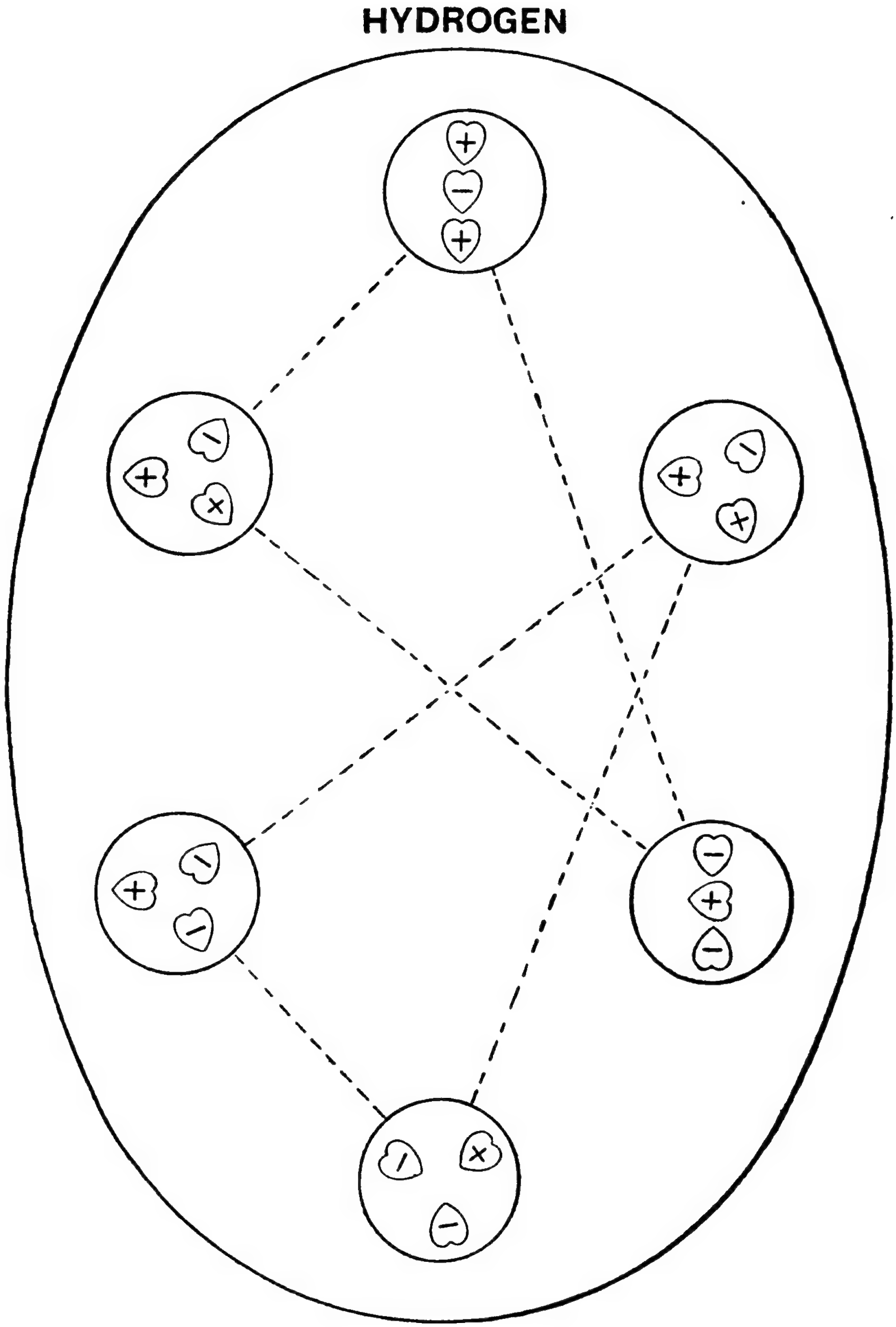


FIG. 1. HYDROGEN

On raising to E3, they undergo another disintegration, losing their limiting walls. The positive sphere becomes two bodies, one consisting of the two groups distinguishable by the linear arrangement of the contained Anu, enclosed in a wall, and the other being the third body enclosed on the E4 level and now set free. The negative sphere also becomes two bodies, one consisting of the two groups of three Anu, and the second, the remaining body, being set free. These free bodies do not remain on the E3 level but pass immediately to E2 leaving the positive and negative groups, each containing two groups of three Anu, as the representatives of Hydrogen on E3. On taking these bodies a step higher to E2 in their turn, their wall disappears, and the internal triads are set free, those containing the Anu arranged lineally being positive, and those with the triangular arrangement being negative.

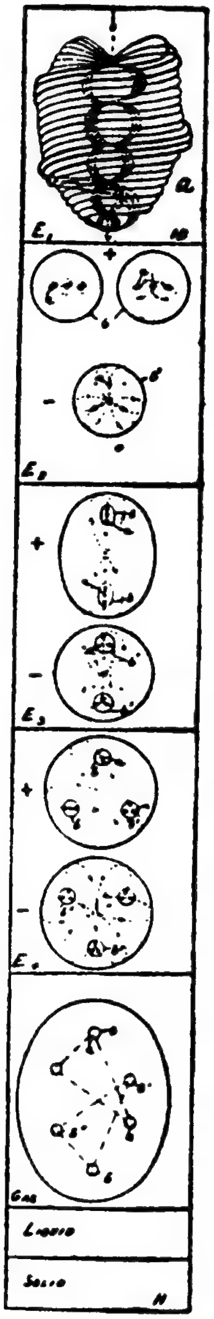


FIG. 2
DISINTEGRATION OF HYDROGEN

On again raising these bodies a step further, the falling away of the walls sets the contained Anu free and we reach the ultimate physical atom, the matter of E1, the Anu. The disintegration of this sets free particles of astral matter, so that we have thus reached the limit of physical matter.

The building up of a gaseous atom of Hydrogen may also be traced *downwards* from the E1 level. Every combination begins by a welling up of force at a centre, which is to form the centre of the combination. In the first positive Hydrogen combination on the E2 level, an Anu revolving at right angles to the plane of the paper and also revolving on its own axis, forms the centre, and force, rushing out at its lower point, rushes in at the depressions of two other Anu, which then set themselves with their points to the centre. As this triad whirls round, it clears itself a space, pressing back the undifferentiated matter of the plane, and making to itself a whirling wall of this matter, thus taking the first step towards building up the chemical Hydrogen atom. A negative triad is similarly formed, the three Anu being symmetrically arranged round the centre of out-welling force.

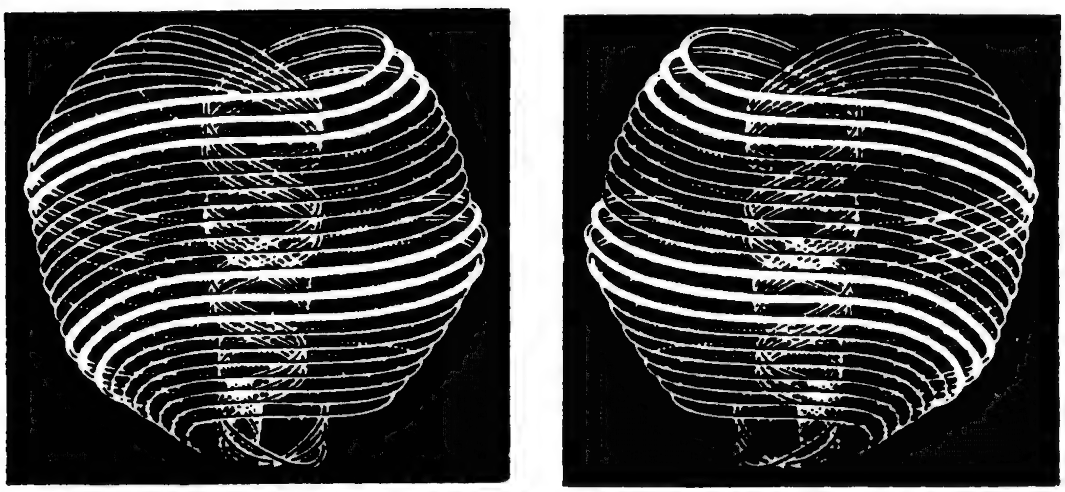
These triads then combine, two of the linear arrangement being attracted to each other and two of the triangular, force again welling up and forming a centre and acting on the triads as on a single Anu, and a limiting wall being again formed as the combination revolves round its centre.

The next stage, the E4 level, is produced by each of these combinations attracting to itself a third triad of the triangular type by the setting up of a new centre of up-welling force. Two of these uniting, and their triangles interpenetrating, the chemical atom is formed and we find it to contain all eighteen Anu.

Further details and diagrams concerning Hydrogen, based on later researches, are given in Chapter 2.

THE ULTIMATE PHYSICAL ATOM OR ANU

As we have seen, a chemical atom may be dissociated into less complicated bodies; these, again, into still less complicated; these, again, into yet still less complicated. After the third dissociation but one more is possible; the fourth dissociation gives the ultimate physical atom on the atomic sub-plane, the Anu. This may vanish from the plane, but it can undergo no further dissociation on it. In this ultimate state of physical matter two types of units, or Anu, have been observed; they are alike in everything save the direction of their whorls and of the force which pours through them. In the one case force pours in from the "outside," from fourth-dimensional space, the Astral plane, and passing through the Anu, pours into the physical world. In the second, it pours in from the physical world, and out through the Anu into the "outside" again, *i.e.*, vanishes from the physical world. The one is like a spring, from which water bubbles out; the other is like a hole, into which water disappears. We call the Anu from which force comes out *positive* or *male*; those through which it disappears, *negative* or *female*. All Anu, so far as observed, are of one or other of these two forms. Fig. 3.



POSITIVE NEGATIVE

FIG. 3. THE ANU

It will be seen that the Anu is a sphere, slightly flattened, and there is a depression at the point where the force flows in, causing a heart-like form. Each is surrounded by a field.

The Anu can scarcely be said to be a "thing," though it is the material out of which all things physical are composed. It is formed by the flow of the life-force and vanishes with its ebb. The life-force is known to Theosophists as Fohat, the force of which all the physical plane forces are differentiations. When this force arises in "space," that is when Fohat "digs holes in space,"—the apparent void which must be filled with substance of some kind, of inconceivable tenuity—Anu appear; if this be artificially stopped for a single Anu, the Anu disappears; there is nothing left. Presumably, were

that flow checked but for an instant, the whole physical world would vanish as a cloud melts away in the empyrean. It is only the persistence of that flow (the first life-wave, the work of the third Logos) which maintains the physical basis of the universe.

In order to examine the construction of the Anu, a space is artificially made. (By a certain action of the will, known to students, it is possible to make such a space by pressing back and walling off the matter of space.) Then, if an opening be made in the wall thus constructed, the surrounding force flows in, and three whorls immediately appear surrounding the "hole" with their triple spiral of two and a half coils, and returning to their origin by a spiral within the Anu; these are at once followed by seven finer whorls, which, following the spiral of the first three on the outer surface, and returning to their origin by a spiral within that, flowing in the opposite direction—form a caduceus with the first three. Each of the three coarser whorls, flattened out, makes a closed circle; each of the seven finer ones, similarly flattened out, makes a closed circle. The forces which flow in them again come from "outside," from a fourth-dimensional space. Each of the finer whorls is formed of seven yet finer ones, set successively at right angles to each other, each finer than its predecessor; these we call spirillae. (Each spirilla is animated by the life-force of a plane, and four are at present normally active, one for each Round. Their activity in an individual may be prematurely forced by yoga practice.)

In the three whorls flow currents of different electricities; the seven whorls vibrate in response to etheric waves of all kinds—to sound, light, heat, etc.; they show the seven colours of the spectrum; give out the seven sounds of the natural scale; respond in a variety of ways to physical vibration—flashing, singing, pulsing bodies, they move incessantly, inconceivably beautiful and brilliant.

The Anu is a sun in miniature in its own universe of the inconceivably minute. Each of the seven whorls is connected with one of the Planetary Logoi, so that each Planetary Logos has a direct influence playing on the very matter of which all things are constructed. It may be supposed that the three conveying electricity, a differentiation of Fohat, are related to the Solar Logos.

Force pours into the heart-shaped depression at the top of the Anu, and issues from the point, and is changed in character by its passage; further, force rushes through every spiral and every spirilla, and the changing shades of colour that flash out from the rapidly revolving and vibrating Anu depend on the several activities of the spirals; sometimes one, sometimes another, is thrown into more energetic action, and with the change of activity from one spiral to another the colour changes.

The Anu has—as observed so far—three proper motions, *i.e.*, motions of its own, independent of any imposed upon it from outside. It turns incessantly upon its own axis, spinning like a top; it describes a small circle with its axis, as though the axis of the spinning top moved in a small circle; it has a regular pulsation, a contraction and expansion, like the pulsation of the heart. When a force is brought to bear upon it, it dances up and down, flings itself wildly from side to side, performs the most astonishing and rapid gyrations, but the three fundamental motions incessantly persist. If it be made to vibrate, as a whole, at the rate which gives any one of the seven colours, the whorl belonging to that colour glows out brilliantly.

An electric current brought to bear upon the Anu checks their proper motions, *i.e.*, renders them slower; the Anu exposed to it arrange themselves in parallel lines, and in each line the heart-shaped depression receives the flow, which passes out through the apex into the depression of the next, and so on. The Anu always set themselves to the current. Fig. 4. In all the diagrams the heart-shaped body, exaggerated to show the depression caused by the inflow and the point caused by the outflow, is a single Anu.

ANU AFFECTED BY ELECTRIC CURRENT

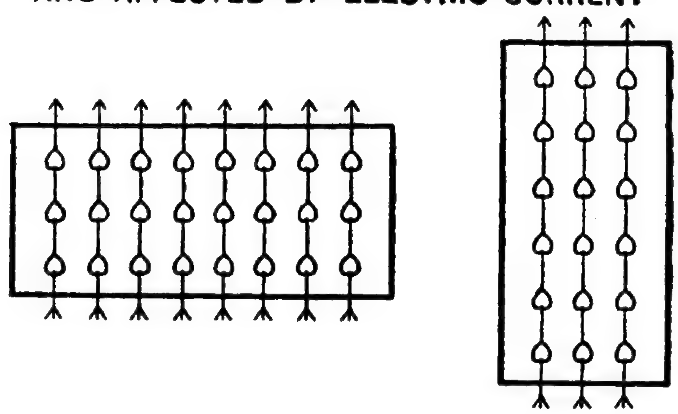


FIG. 4

The action of electricity opens up ground of large extent, and cannot be dealt with here. Does it act on the Anu themselves, or on molecules, or sometimes on one and sometimes on the other? In soft iron, for instance, are the internal arrangements of the chemical atom forcibly distorted, and do they elastically return to their original relations when released? In steel is the distortion permanent?

It will be understood from the foregoing, that the Anu cannot be said to have a wall of its own, unless these whorls of force can be so designated; its "wall" is the pressed back "space." As said in 1895, of the chemical atom, the force "clears itself a space, pressing back the undifferentiated matter of the plane, and making to itself a whirling wall of this matter." The wall belongs to space, not to the atom.

NOTE BY C. JINARĀJADĀSA

The sphere-wall of the Anu. Each Anu, as each group of Anu, whether few in number or making a large configuration as in Radium, has round it what has been termed a "sphere-wall". This enclosing sphere is at a great distance from the central group and is generally a sphere; there are a few exceptions as in Nitrogen, an ovoid. When writing out for publication the structure of the Anu, Annie Besant stated that the sphere-wall of the Anu was composed of the "undifferentiated matter of the plane". From the beginning this has created difficulties for me, since the term used by her to describe the sphere-wall could only be composed of Anu. It was only later that a special investigation was made to examine the nature of the sphere-wall of the Anu. Though there were no final conclusions on the matter, it appeared to the investigator as if the sphere-wall was composed of

forces radiating from the centre, which after travelling a certain distance, returned to the centre. The nature of this radiating force was not analyzed. Therefore, though the sphere-wall appears as a part of the Anu, it is only a temporary phenomenon. It was later discovered that the sphere-walls of Anu within the solar system were all compressed by the attraction of the sun. When so compressed the sphere-wall did not, as expected, have the shape of the dodecahedron, but that of the rhombic dodecahedron.

KOILON—THE AETHER OF SPACE

The following account was written by C. W. Leadbeater in 1907. It is reproduced here as giving further essential details concerning the relation between the planes of nature and the structure of the Anu :

The scientific hypothesis is that all space is filled with a substance called aether, as to the constitution of which many apparently contradictory statements are made. It is thought to be infinitely thinner than the thinnest gas, absolutely frictionless and without weight, and yet from another point of view far denser than the densest solid. In this substance the ultimate atoms of matter are thought to float as motes may be seen to float in the air, and light, heat and electricity are supposed to be its vibrations.

Theosophical investigators, using methods not yet at the disposal of physical science, have found that this hypothesis includes under one head two entirely different and widely separated sets of phenomena. They have been able to deal with states of matter higher than the gaseous, and have observed that it is by means of vibrations of this finer matter that light, heat and electricity manifest themselves to us. Seeing that matter in these higher states thus performs the functions attributed to the aether of science, they have (perhaps unadvisedly) called these states etheric, and have thus left themselves without a convenient name for that substance which fulfils the other part of the scientific requirements.

Let us for the moment name this substance koilon , since it fills what we are in the habit of calling empty space. What Mûlaprakriti or "mother-matter" is to the inconceivable totality of universes, koilon is to our particular universe—not to our solar system merely, but to the vast unit which includes all visible suns. Between koilon and Mûlaprakriti there must be very many stages, but we have at present no means of estimating their number or of knowing anything whatever about them.

To any power of sight which we can bring to bear upon it this koilon appears homogeneous, though it is not probable that it is so in reality. It answers to scientific demands in so far that it is out of all proportion denser than any substance known to us—

[1] Greek word meaning "hollow"—C. J.

quite infinitely denser—belonging to another order and type of density altogether For the very kernel and nexus of the whole conception is that what we call matter is *not* koilon, but the *absence of koilon*. So that to comprehend the real conditions we must modify our ideas of matter and space—modify them almost to the extent of reversing our terminology. Emptiness has become solidity and solidity emptiness

To help us to understand more clearly let us examine the ultimate atom of the physical plane. (See Figs. 3 and 6.) It is composed of ten rings or wires, which lie side by side, but never touch one another. If one of these wires be taken away from the atom, and as it were untwisted from its peculiar spiral shape and laid out on a flat surface, it will be seen that it is a complete circle—a tightly twisted endless coil. This coil is itself a spiral containing 1,680 turns; it can be unwound, and it will then make a much larger circle. There are in each wire seven sets of such coils or spirillae, each finer than the preceding coil, to which its axis lies at right angles. The process of unwinding them in succession may be continued until we have nothing but an enormous circle of the tiniest imaginable dots lying like pearls upon an invisible string. These dots are so inconceivably small that many millions of them are needed to make one ultimate physical atom. They appear to be the basis of all matter of which we at present know anything; astral, mental and buddhic atoms also are built of them, so we may regard them as fundamental units of which all material atoms on any plane yet attainable are composed.

These units are all alike, spherical and absolutely simple in construction. Though they are the basis of all matter, they are not themselves matter; they are not blocks but bubbles. They do not resemble bubbles floating in the air, which consist of a thin film of water separating the air within them from the air outside, so that the film has both an outer and an inner surface. Their analogy is rather with the bubbles that we see rising in water, bubbles which may be said to have only one surface—that of the water which is pushed back by the contained air. Just as the bubbles are not water, but are precisely the spots from which water is absent, so these units are not koilon but the absence of koilon—the only spots where it is not—specks of nothingness floating in it, so to speak, for the interior of these space-bubbles is an absolute void to the highest power of vision that we can turn upon them.

What then is their real content—the tremendous force that can blow bubbles in a material of infinite density? What but the creative power of the Logos, the Breath which He breathes into the waters of space when He wills that manifestation shall commence? These infinitesimal bubbles are the "holes" which "Fohat digs in space": the Logos Himself fills them, and holds them in existence against the pressure of the koilon because He Himself is in them. These units of force are the bricks which He uses in the building of His universe, and everything that we call matter, on however high or low a plane it may be, is composed of these and so is divine in its very essence.

The Outbreathing which makes these bubbles is quite distinct from and long antecedent to the Three Outpourings which have been so frequently discussed in Theosophical literature; it is not even certain whether it is the work of the Solar Logos or of One a stage higher still. The later Outpourings whirl the bubbles into the various arrangements which we call the atoms of the several planes, and then aggregate those atoms into the molecules of the chemical elements.

Thus the worlds are gradually built up, but always out of this selfsame material which to us seems nothingness, and yet is divine power. It is indeed a veritable creation, a building of something out of nothing—of what we call matter out of a privation of matter.

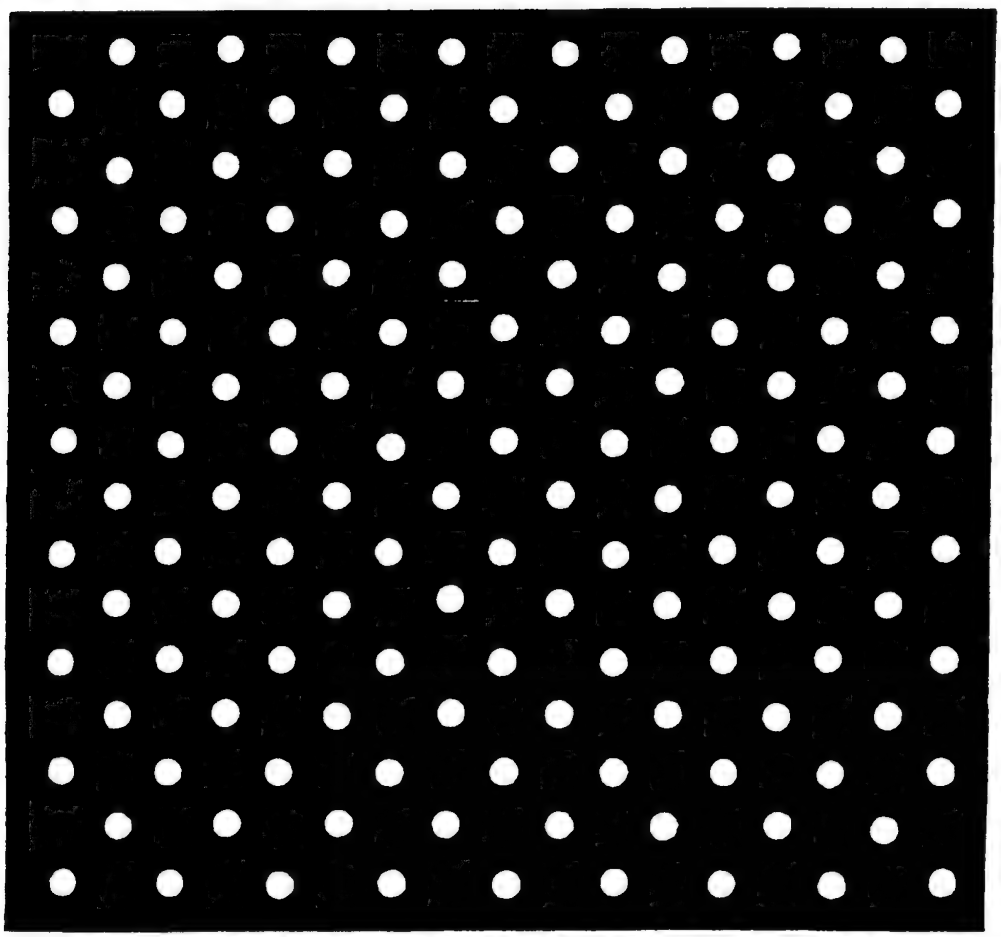


FIG. 5. BUBBLES IN KOILON

The exact number of these bubbles included in an ultimate physical atom is not readily ascertainable, but several different lines of calculation agree in indicating it as closely approximating to the almost incredible total of fourteen thousand millions. Where figures are so huge direct counting is obviously impossible, but fortunately the different parts of the atom are sufficiently alike to enable us to make an estimate whose margin of error is not likely to be very great. The atom consists of ten wires, which divide themselves naturally into two groups—the three which are thicker and more prominent, and the seven thinner ones which correspond to the colours and planets. These latter appear to be identical in constitution, though the forces flowing through them must differ, since each responds most readily to its own special set of vibrations. By actual counting it has been discovered that the numbers of coils or spirillæ of the first order in each wire is 1,680; and the proportion of the different order of spirillæ to one another is equal in all cases that have been examined, and corresponds with the number of bubbles in the ultimate spirilla of the lowest order. The ordinary sevenfold rule works quite accurately with the thinner coils, but there is a very curious variation with regard to the set of three. As may be seen from the drawings, these are obviously thicker and more prominent, and this increase of size is produced by an augmentation (so slight as to be barely perceptible) in the proportion to one another of the different orders of spirillæ and in the number of bubbles in the lowest. This augmentation, amounting at present to not more than ·00571428 of the whole in each case, suggests the unexpected possibility that this portion of the atom may be somehow actually undergoing a change—may in fact be in process of growth, as there is reason to suppose that these three thicker spirals orginally resembled the others.

Since observation shows us that each physical atom is represented by forty-nine astral atoms, each astral atom by forty-nine mental atoms and each mental atom by forty-nine of those on the buddhic plane, we have here evidently several terms of a regular progressive series, and the natural presumption is that the series continues where we are no longer able to observe it. Further probability is lent to this assumption by the remarkable fact that—if we assume one bubble to be what corresponds to an atom on the seventh or highest of our planes and then suppose the law of multiplication to begin its operation, so that 49 bubbles shall form the atom of the next or sixth plane, 2,401 that of the fifth, and so on—we find that the number indicated for the physical atom (49^6) corresponds almost exactly with the calculation based upon the actual counting of the coils. Indeed, it seems probable that but for the slight growth of the three thicker wires of the atom the correspondence would have been perfect.

It must be noted that an ultimate physical atom cannot be directly broken up into astral atoms. If the unit of force which whirls those millions of bubbles into the complicated shape of a physical atom be pressed back by an effort of will over the threshold of the astral plane, the atom disappears instantly, for the bubbles are released. But the same unit of force, working now upon a higher level, expresses itself not through one astral atom, but through a group of 49. If the process of pressing back the unit of force is repeated, so that it energizes upon the mental plane, we find the group there enlarged to the number of 2,401 of those higher atoms. Upon the buddhic plane the number of atoms formed by the same amount of force is very much greater still—probably the cube of 49 instead of

the square, though they have not been actually counted. It is also probable, though not certainly known, that the number of bubbles utilized by that unit of force is the same on all these planes, though grouped on the physical as one atom, on the astral as 49 atoms, on the mental as 2,401. Therefore one physical atom is not *composed of* forty-nine astral or 2,401 mental atoms, but *corresponds* to them in the sense that the force which manifests through it would show itself on those higher planes by energizing respectively those numbers of atoms.

The koilon in which all these bubbles are formed undoubtedly represents a part, and perhaps the principal part, of what science describes as the luminiferous æther. Whether it is actually the bearer of the vibrations of light and heat through interplanetary space is as yet undetermined. It is certain that these vibrations impinge upon and are perceptible to our bodily senses only through the etheric matter of the physical plane. But this by no means proves that they are conveyed through space in the same manner, for we know very little of the extent to which the physical etheric matter exists in interplanetary and interstellar space, though the examination of meteoric matter and cosmic dust shows that at least some of it is scattered there.

The scientific theory is that the aether has some quality which enables it to transmit at a certain definite velocity transverse waves of all lengths and intensities—that velocity being what is commonly called the speed of light. Quite probably this may be true of koilon, and if so it must also be capable of communicating those waves to bubbles or aggregations of bubbles, and before the light can reach our eyes there must be a downward transference from plane to plane similiar to that which takes place when a thought awakens emotion or causes action.

In a recent pamphlet on *The Density of Aether* Sir Oliver Lodge remarks "Just as the ratio of mass to volume is small in the case of a solar system or a nebula or a cobweb, I have been driven to think that the observed mechanical density of matter is probably an excessively small fraction of the total density of the substance, or æther, contained in the space which it thus partially occupies—the substance, of which it may hypothetically be held to be composed.

"Thus for instance, consider a mass of platinum, and assume that its atoms are composed of electrons, or of some structures not wholly dissimilar: the space which these bodies actually fill, as compared with the whole space which in a sense they 'occupy,' is comparable to one ten-millionth of the whole, even inside each atom; and the fraction is still smaller if it refers to the visible mass. So that a kind of minimum estimate of ætherial density, on this basis, would be something like ten thousand million times that of platinum." And further on he adds that this density may well turn out to be fifty thousand million times that of platinum. "The densest matter known" he says, "is trivial and gossamer-like compared with the unmodified æther in the same space."

Incredible as this seems to our ordinary ideas, it is undoubtedly an understatement rather than an exaggeration of the true proportion as observed in the case of koilon. We shall understand how this can be so if we remember that koilon seems absolutely homogeneous and solid even when examined by a power of magnification which makes physical atoms appear in size and arrangement like cottages scattered over a lonely moor, and when we further add to this the recollection that the bubbles of which these atoms

FIG. 5a. FORMATION OF BUBBLES INTO 1ST SPIRILLA
AND 2ND AND 3RD SPIRILLAE

in turn are composed are themselves what may be not inaptly called fragments of nothingness.

In the same pamphlet Sir Oliver Lodge makes a very striking estimate of the intrinsic energy of the aether. He says "The total output of a million-kilowatt power station for thirty million years exists permanently, and at present inaccessibly, in every cubic millimetre of space." Here again he is probably underestimating rather than over-estimating the stupendous truth.

It may be asked how it is possible, if all this be so, that we can be so utterly unaware of the facts—how we can pass through and move amongst so dense a solid as this koilon without seeing or feeling it in any way. The answer is that consciousness can recognize only consciousness—that since we are of the nature of the Logos we can sense only those things which are also of His nature. These bubbles are of His essence, and therefore we, who are also part of Him, can see matter which is built of them, for they represent to us vehicles or manifestations of Him. But the koilon in which they move is of some other and as yet unknown nature, and therefore it is to us non-manifestation, and so imperceptible. We pass through it just as easily and unconsciously as a gnome passes through a rock, or as the wind blows through a network of iron wire. We live in it as mites live in a cheese or microbes in a body. The world built up of fragments of nothingness is to us the visible reality, just as to a miner his mine is an objective reality even though it consists of empty galleries hollowed out of the solid rock.

As none of our investigators can raise his consciousness to the seventh plane, it will be of interest to explain how it is possible for them to see what may very probably be the atom of that plane That this may be understood it is essential to remember that the power of magnification by means of which these experiments are conducted is quite apart from the faculty of functioning upon one or other of the planes. The latter is the result of a slow and gradual unfoldment of the self, while the former is merely a special development of one of the many powers latent in man. All the planes are round us here, just as much as at any other point in space, and if a man sharpens his sight until he can see their tiniest atoms he can make a study of them, even though he may as yet be far from the level necessary to enable him to understand and function upon the higher planes as a whole or to come into touch with the glorious Intelligences who gather those atoms into vehicles for Themselves.

A partial analogy may be found in the position of the astronomer with regard to the stellar universe, or let us say the Milky Way. He can observe its constituent parts and learn a good deal about them along various lines, but it is absolutely impossible for him to see it as a whole from outside, or form any certain conception of its true shape and to know what it really is. Suppose that the universe is, as many of the ancients thought, some inconceivably vast Being; it is utterly impossible for us, here in the midst of it, to know what that Being is or is doing, for that would mean raising ourselves to a height comparable with His; but we may make extensive and detailed examination of such particles of His body as happen to be within our reach, for that means only the patient use of powers and machinery already at our command.

Let it not be supposed that, in thus unfolding a little more of the wonders of Divine truth by pushing our investigations to the very furthest point at present possible

to us, we in any way alter or modify all that has been written in Theosophical books of the shape and constitution of the physical atom, and of the wonderful and orderly arrangements by which it is grouped into the various chemical molecules; all this remains entirely unaffected.

Nor is any change introduced as regards the Three Outpourings from the Logos, and the marvellous facility with which the matter of the various planes is by them moulded into forms for the service of the evolving life. But if we wish to have a right view of the realities underlying manifestation in this universe we must to a considerable extent reverse the ordinary conception as to what this matter essentially is. Instead of thinking of its ultimate constituents as solid specks floating in a void, we must realize that it is the apparent void itself which is solid, and that the specks are but bubbles in it. That fact once grasped, all the rest remains as before. The relative position of what we have hitherto called matter and force is still for us the same as ever; it is only that on closer examination both of these conceptions of ours prove to be in reality variants of force, the one ensouling combinations of the other, and the real matter (koilon) is seen to be something which has hitherto been outside our scheme of thought altogether.

How vividly, how unmistakably this knowledge brings home to us the great doctrine of Maya, the transitoriness and unreality of earthly things, the utterly deceptive nature of appearances! When the candidate for initiation sees (not merely believes, remember, but actually *sees*) that what has always before seemed to him empty space is in reality a solid mass of inconceivable density, and that the matter which has appeared to be the one tangible and certain basis of things is not only by comparison tenuous as gossamer (the "web" spun by "Father-Mother"), but is actually composed of emptiness and nothingness—is itself the very negation of matter—then for the first time he thoroughly appreciates the valuelessness of the physical senses as guides to the truth. Yet even more clearly still stands out the glorious certainty of the immanence of the Divine; not only is everything ensouled by the Logos, but even its visible manifestation is literally part of Him, is built of His very substance, so that matter as well as spirit becomes sacred to the student who really understands.

Perhaps the consideration of these two factors may help us to comprehend many statements in *The Secret Doctrine*, such as (to select two references at random) that "matter is nothing but an aggregation of atomic forces" (iii, 398) and that "Buddha taught that the primitive substance is eternal and unchangeable. Its vehicle is the pure luminous ether, the boundless infinite space, not a void resulting from the absence of the forms, but on the contrary the foundation of all forms." (iii, 402)

It has been suggested (though this is merely a matter of reverent speculation) that in successive universes there may be a progressive diminution in the size of the bubbles—that it may be the very glory of a Logos that He can sacrifice Himself to the uttermost by thus thoroughly permeating and making Himself one with that portion of koilon which He selects as the field of His universe.

What is the actual nature of koilon, what is its origin, whether it is itself in any way changed by the Divine Breath which is poured into it—these are questions the answers to which investigation cannot as yet give, though they may perchance be found by an intelligent study of the great scriptures of the world.

NOTE BY C. W. LEADBEATER

There is a sentence in the article on "Koilon". It runs as follows:

"By actual counting it has been discovered that the number of coils or spirillæ of the first order in each wire is 1,680; and the proportion of the different orders of spirillæ to one another is equal in all cases that have been examined, and corresponds with the number of bubbles in the ultimate spirilla of the lowest order."

I counted all those 1,680 turns in the wire of the Anu, not once, but many times. I tried altogether 135 different specimens, taken from all sorts of substances.

If we remove one wire from the Anu it can of course be straightened out into a circle. Really, however, it is not a single wire but a spiral spring, as in Fig. 6, and I called each of these little rings a coil, or a "spirilla of the first order," "a," and I meant to explain that there were 1,680 of these rings or turns or coils in each wire. But each of those coils is itself a spiral spring made up of *finer* coils (which we might call "b") and I

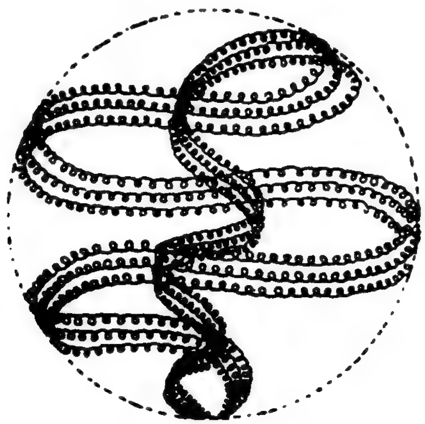


FIG. 6. THREE COILS IN AN ANU

called *those* "spirillæ of the second order," and so on down to "spirillæ of the lowest order". In the seven thinner wires of the atom which correspond to the seven colours I find that each "spirilla of the first order," "a," is composed of *seven* "spirillæ of the second order", "b", each "b" in turn is composed of seven "c"s, each "c" of seven "d"s, and so on down to the "spirilla of the lowest order" which is composed of exactly seven bubbles.

But in the three thicker wires of the atom there is a very slight difference. The seven bubbles no longer fit *exactly* under one another, as it were, if one looks along or through the wire endwise; in 100 "spirillæ of the lowest order" there *ought* to be just 700 bubbles; so there *are* in the seven thinner, coloured wires, but in the three thicker wires there are 704. So the increase is at present 1 in 175. *And* the same curious little increase holds good in the relation of the different orders of spirillae. In the *thinner* wires exactly 7 spirillae of one order make 1 of the next higher order, so that 700 "b"s make exactly 100 "a"s and so on; but in the *thicker* wires 704 "b"s go to 100 "a"s, and the same curious proportion all through. That is what I meant when I said that "the proportion of the different orders of spirillae to one another

is equal, and corresponds with the number of bubbles in the ultimate spirilla of the lowest order."

THE ETHERIC SUBPLANES

The first etheric subplane E1 is formed, as has been previously explained, by single Anu. More or less complex combinations of these Anu form successively the second, E2, third, E3, and fourth, E4, etheric subplanes.

The second subplane E2—The simplest union of Anu, apparently never consisting of more than seven, form the second etheric subplane. In Fig. 7 are shown some characteristic combinations of the E2 state; the Anu is conventional, with the depression emphasized. The lines, always entering at the depression and coming out at the apex, show the resultants of lines of force. Where no line appears entering the depression, the force wells up from four-dimensional space; where no line appears leaving the apex, the force disappears into four-dimensional space; where the point of entry and departure is outside the Anu, it is indicated by a dot. It must be remembered that the diagrams represent three-dimensional objects, and that the Anu are not necessarily all on one plane.

TYPES OF E2 MATTER

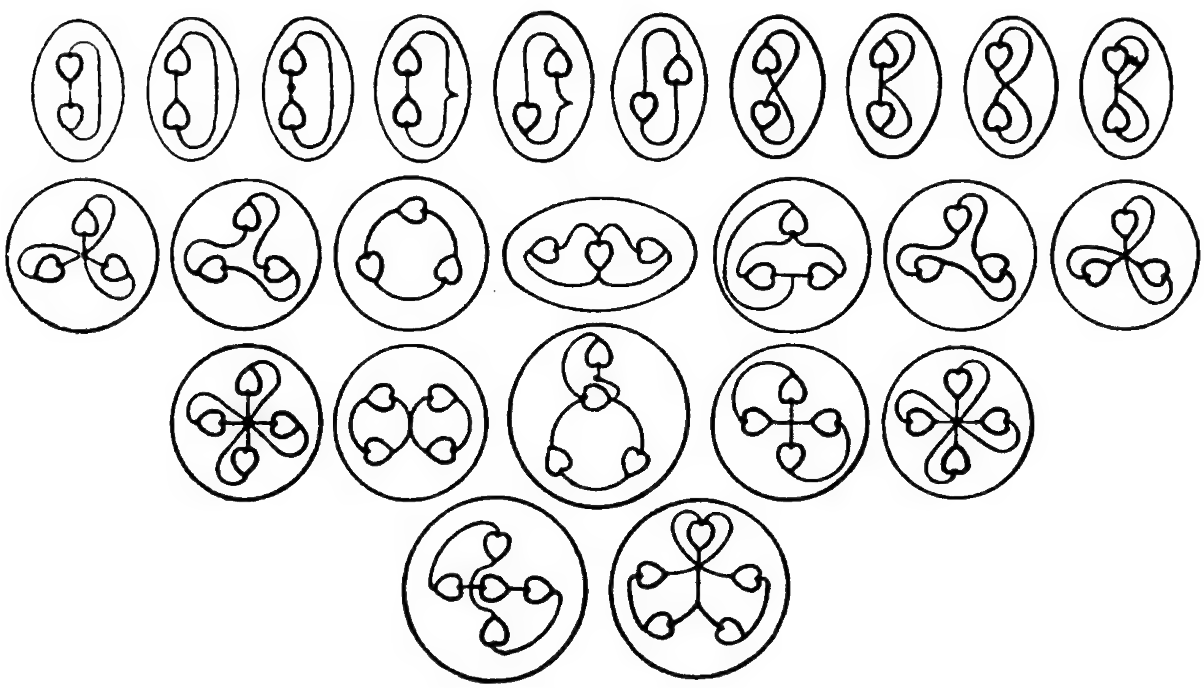


FIG. 7

The third Etheric Subplane E3— The E3 state, in some of its combinations, appears at first sight to repeat those of the E2 state; the only obvious way of distinguishing to which some of the groups of less complexity belong is to pull them out of the "cell-wall": if they are E2 groups they at once fly off as separate Anu; if they are E3 groups they break up into two or more groups containing a smaller number of Anu. Thus one of the E2 groups of iron, containing seven Anu, is identical in appearance with an E3 heptad, but the former dissociates into seven Anu, the latter into two triads and a single Anu. Long-continued research into the detailed play of forces and their results is necessary; we are here only able to give preliminary facts and details, are opening up the way.

TYPES OF E3 MATTER

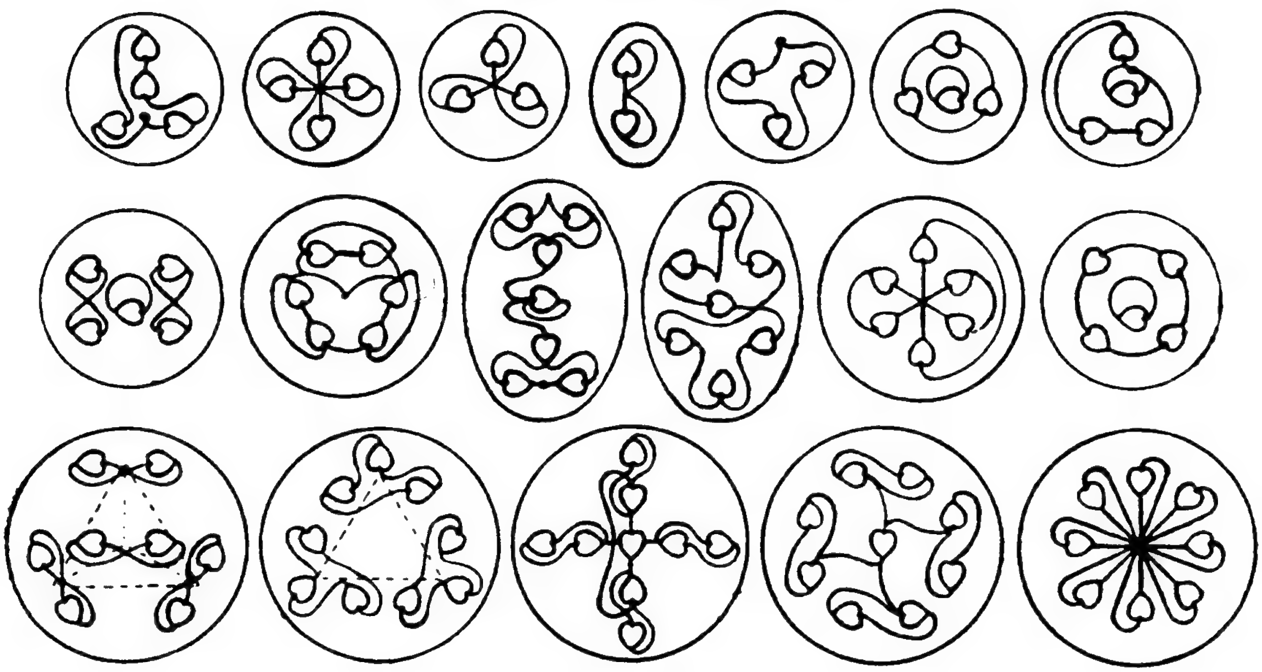


FIG. 8

The fourth etheric subplane E4.—The E4 state preserves many of the forms in the elements, modified by release from the pressure to which they are subjected in the chemical atom. In this state various groups are thus recognizable which are characteristic of allied elements.

These groups are taken from the products of the first disintegration of the chemical atom, by forcibly removing it from its hole. The groups fly apart, assuming a great variety of forms often more or less geometrical; the lines between the constituents of the groups, where indicated, no longer represent lines of force, but are intended to represent the impression of form, *i.e.*, of the relative position and motion of the constituents, made on the mind of the observer. They are elusive, for there are no lines. The appearance of lines is caused by the rapid motion of the constituents up and down, or along them backwards and forwards. The dots represent Anu, within the elements. Fig. 9.

Two Anu, positive and negative, brought near to each other, attract each other, and then commence to revolve round each other, forming a relatively stable duality; such a molecule is neutral. Combinations of three or more Anu are positive, negative or neutral, according to the internal molecular arrangement; the neutral are relatively stable, the positive and negative are continually in search of their respective opposites, with a view to establishing a relatively permanent union.

Speaking generally, *positive groups are marked by the points of Anu being turned outward and negative groups by the points being turned inward* towards each other and the centre of the group.

The groups show all kinds of possible combinations; the combinations spin, turn head over heels, and gyrate in endless ways. Each aggregation is surrounded with an apparent cell-wall, a circle or oval, due to the pressure on the surrounding matter caused by its whirling motion. The surrounding fields strike on each other and the groups and rebound, dart hither and thither, for reasons we have not distinguished.

TYPES OF E4 MATTER

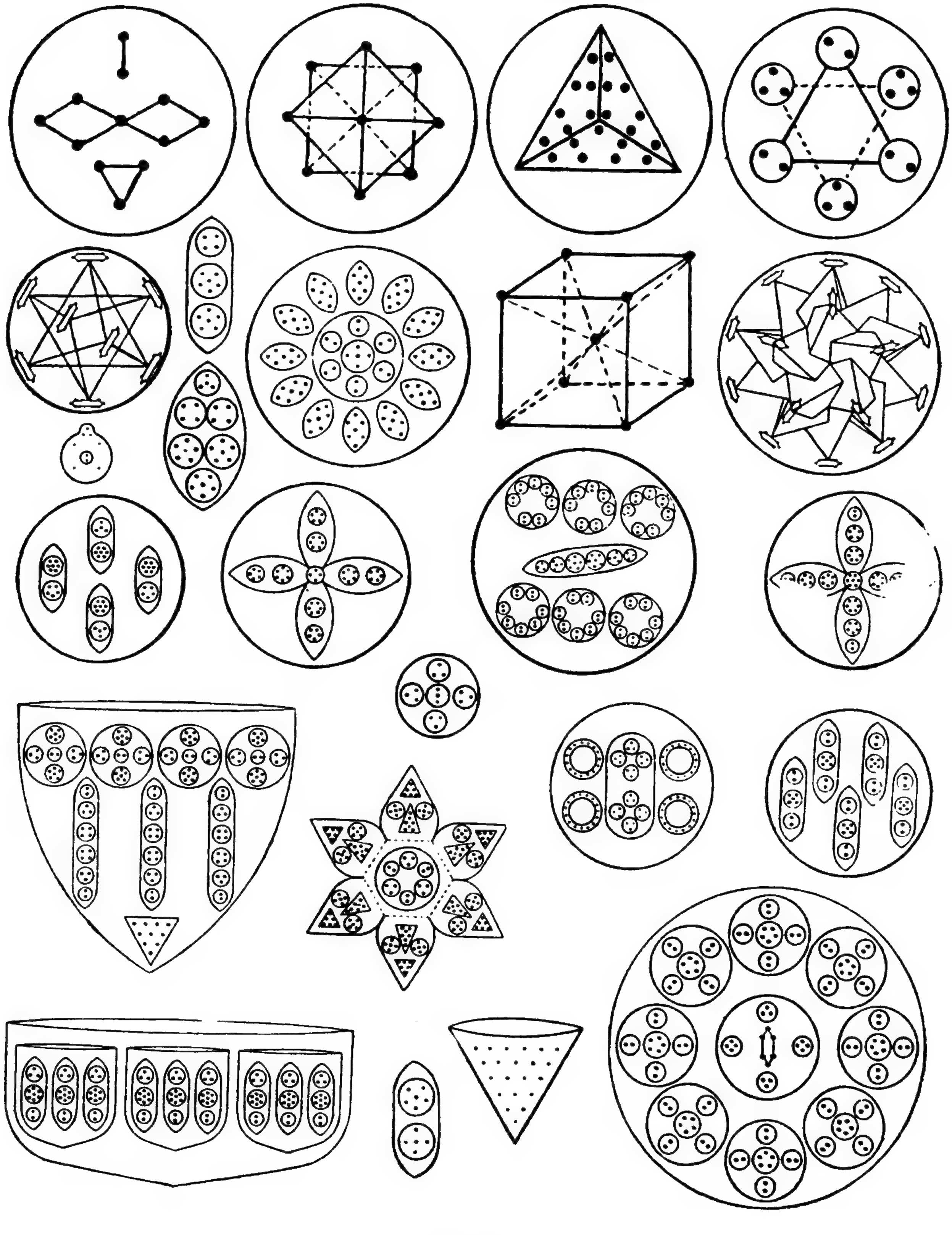


FIG. 9

THE CHEMICAL ELEMENTS

The first thing which is noticed by the observer, when he turns his attention to the chemical atoms, is that they show certain definite forms. The main types are not very numerous, and we found that, when we arranged the atoms we had observed according to their external forms, with a few exceptions they fell into seven natural classes. Fig. 10.

1. The Spike Group
2. The Dumb-bell Group
3. The Tetrahedron Group
4. The Cube Group
5. The Octahedron Group
6. The Crossed Bars Group
7. The Star Group

Each atom has a spherical or oval wall, within which the various groups of Anu move. That wall is drawn as an ovoid in the case of Hydrogen; it must be imagined in the case of every other element. A sphere-wall is a temporary effect, caused by one or more Anu in rotation. Just as a stream of air under pressure will make a hole on the surface of water, by pushing back that water, so is it with the groups. As they revolve, the force of their motion drives back the circumambient medium. That medium thus driven back by the atom element as it moves round its axis is the space around it which is filled with millions of loose Anu; it also drives back denser parts of what is called astral matter. For instance the medium driven back by each separate funnel in Sodium is astral atomic matter.

In the seven clearly defined forms it is worthy of notice that in divalent elements *four* funnels open on the faces of a tetrahedron; in trivalent, *six* funnels on the faces of a cube; in tetravalent, *eight* funnels on the faces of an octahedron. Here we have a regular sequence of the platonic solids, and the question suggests itself, will further evolution develop elements shaped to the dodecahedron and the icosahedron?

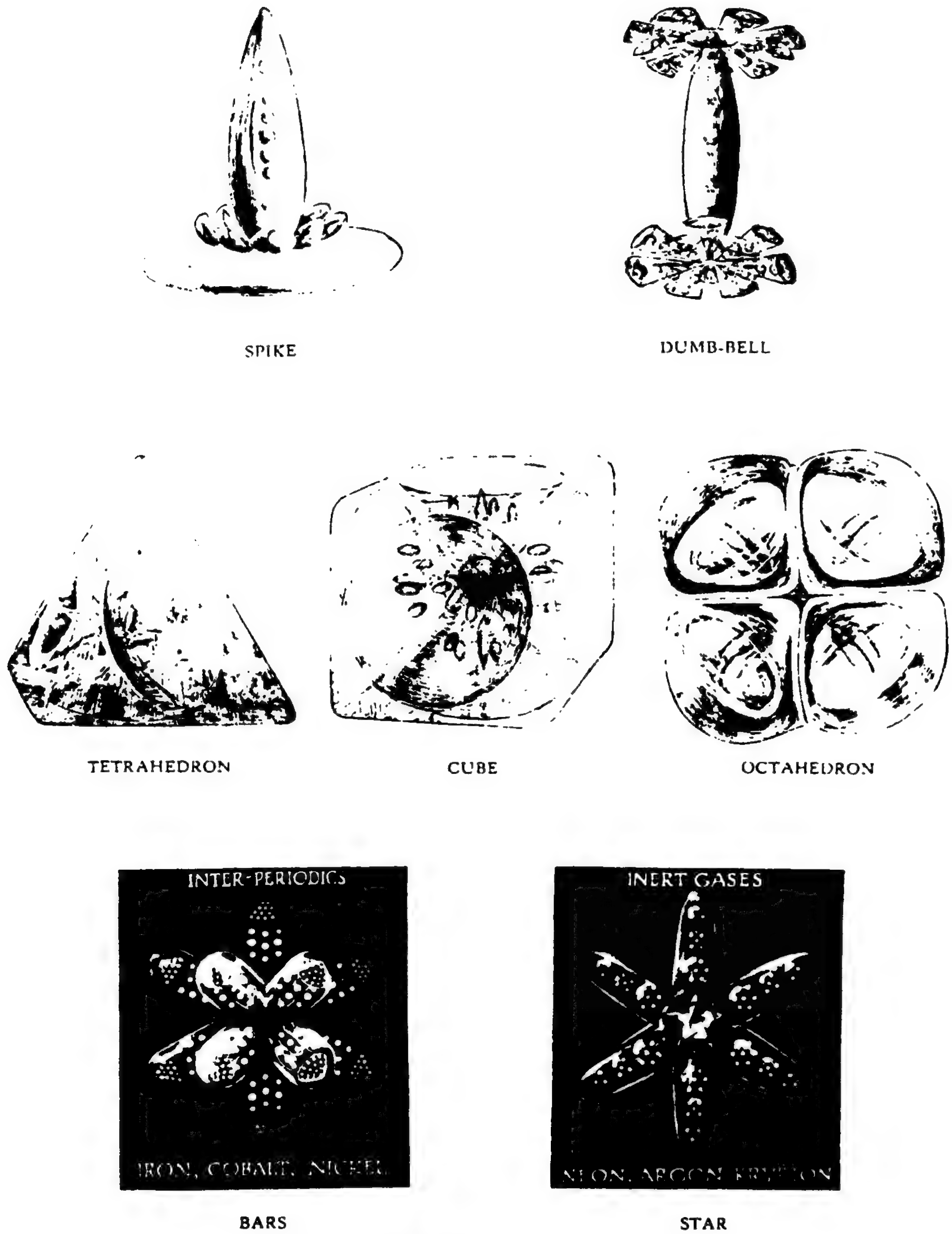
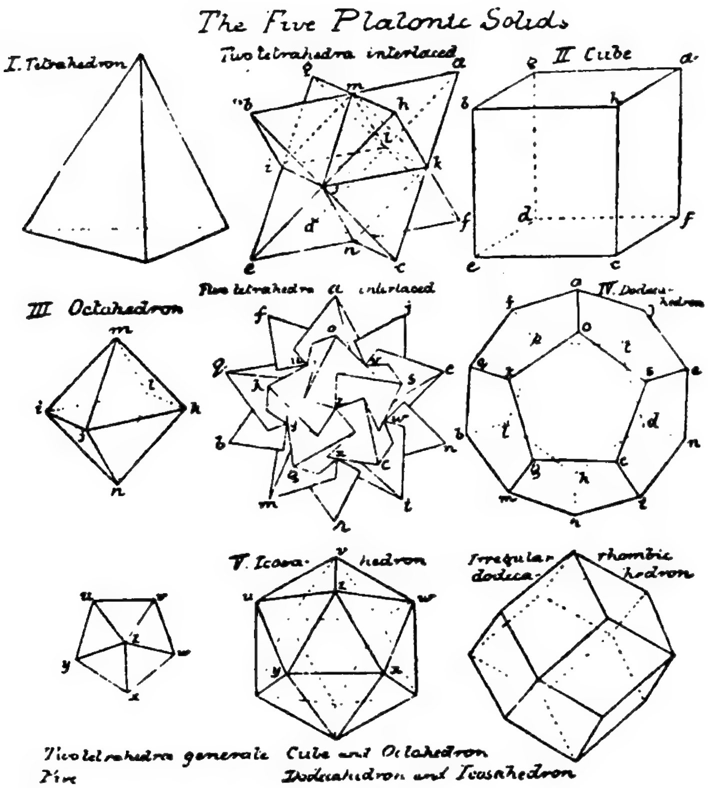


FIG. 10. THE SEVEN FUNDAMENTAL FORMS OF THE ELEMENTS



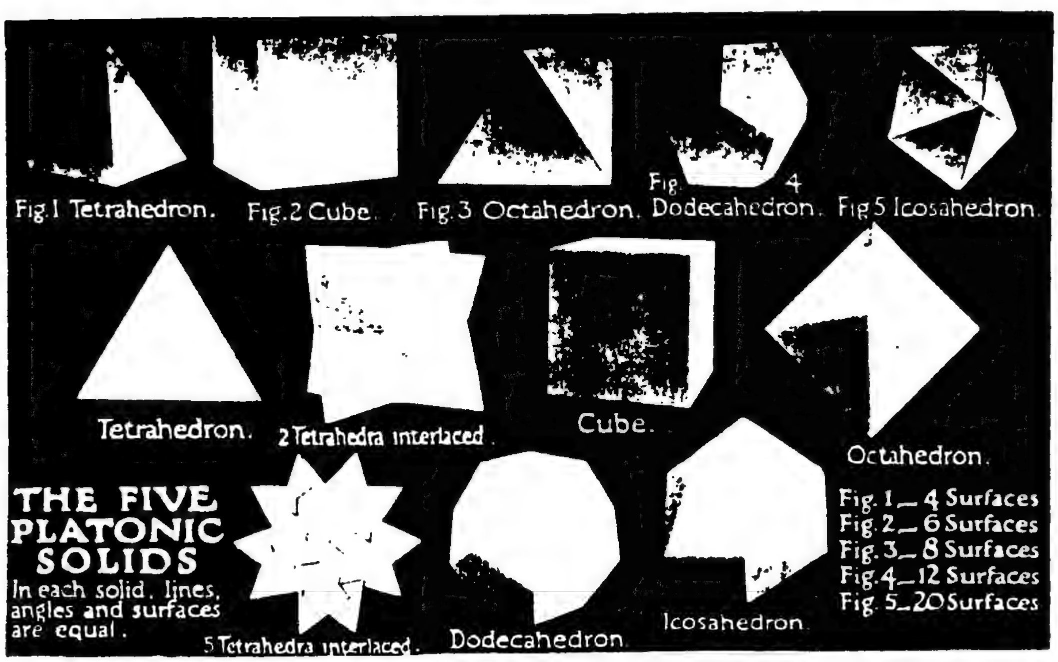


FIG. [illegible] THE PLATONIC SOLIDS

THE PLATONIC SOLIDS

Fig. 11 shows the five Platonic Solids. It was seen during the investigations at Weisser-Hirsch that all the chemical elements, with the exception of Hydrogen, Oxygen and Nitrogen, appeared to be constructed in a way which suggested the well-known Platonic solids—tetrahedron, cube, octahedron, dodecahedron and icosahedron. No element suggesting the dodecahedron was found, but bodies which made the central nucleus in several elements had groups of six Anu at the twenty corners of the dodecahedron.

A most interesting fact was the discovery by a Spanish Theosophist, Senor Arturo Soria Y Mata, of the relation that exists between the tetrahedron, dodecahedron and icosahedron. He constructed models of five regularly interlaced tetrahedra, and the twenty points of these five tetrahedra, when joined, gave the surface of the twelve-sided dodecahedron, while the intersecting points of the tetrahedron and dodecahedron gave the corners of the icosahedron. He published a monograph, "Genesis," in Madrid in 1913 giving the diagrams and showing how to cut paper to make the various solids. There has never been any difficulty concerning the five solids, but it was he who for the first time gave the diagrams describing how to cut the twenty corners of five tetrahedra and join them together. It was only in 1922, when investigating the structure of Benzene, that the figure of the dodecahedron was found as the central uniting nucleus of Benzene.

IDENTIFYING THE ELEMENTS

One difficulty that faced the investigators was the identification of the forms seen on focusing the sight on gases. It was only possible to proceed tentatively. Thus, a very common form in the air had a sort of Dumb-bell shape. We examined this, comparing our rough sketches, and counted its Anu; these, divided by 18—the number of ultimate atoms in Hydrogen—gave us 23.22 as the atomic weight, and this offered the presumption that the atom observed was Sodium. We then took various substances such as common salt, in which we knew sodium was present, and found the Dumb-bell form in all. In other cases, we took small fragments of metals, as Iron, Tin, Zinc, Silver, Gold; in others, again, pieces of ore, or mineral waters. For the rarest substances, Mr. Leadbeater visited a mineralogical museum.

In counting the number of Anu in a chemical atom, we did not count them throughout, one by one; when, for instance, we counted up the Anu in Sodium, we dictated the number in each convenient group to Mr. Jinarajadasa, and he multiplied out the total, divided by 18, and announced the result. Thus: Sodium is composed of an upper part, divisible into a globe and 12 funnels; a lower part, similarly divided; and a connecting rod. We counted the number in the upper part: globe—10; the number in two or three of the funnels—each 16; the number of funnels—12; the same for the lower part; in the connecting rod—14. Mr. Jinarajadasa reckoned: $10 + (16 \times 12) = 202$; hence: $202 + 202 + 14 = 418$: divided by $18 = 23.22$ recurring. By this method we guarded our counting from any prepossession, as it was impossible for us to know how the various numbers would result on addition, multiplication and division, and the exciting moment came when we waited to see if our results endorsed or approached any accepted weight. In the heavier elements, such as gold, with 3,546 Anu, it would have been impossible to count each Anu without quite unnecessary waste of time, when making a preliminary investigation. Later, it may be worth while to count each division separately, as in some we noticed that two groups, at first sight alike, differed by 1 or 2 Anu.

THE PERIODIC LAW

The groups into which the elements fall when arranged according to their external forms prove to be very similar to those indicated in Sir William Crookes' classification. The simplest form of presentation of this periodic law is that described by Crookes in a lecture which he gave to the Royal Institution in London on February 18, 1887. Crookes visualizes a cosmic energy at work on cosmic substance which he terms "protyle". We can imagine this energy as of two kinds, one tending as if downwards, from above below, the other as if swinging pendulum-wise from right to left, left to right. The swing of the pendulum slowly narrows. Both forces are rhythmic, and they meet and cross at set places or periods. Where that happens, then "protyle" is affected, and an element is generated.

BUILDING THE HEAVIER ELEMENTS

In considering the heavier elements, especially those belonging to the radio-active group, we find a certain variation from the orderly progress. All the way down we have been in the presence of an evolutionary force steadily pressing downward into matter along a spiral line. At certain points this force encounters the perpendicular lines which represent the various types or tendencies. We can imagine a group of nature spirits, marshalled under the orders of some higher Power, building these atoms according to the plan of the line to which they belong, and then scheming how to introduce the additional atoms which have been gathered since last the force crossed their line, while still retaining the main characteristics of their original plan.

Among the heavier elements it would seem that the power of the distinctive type is becoming less in proportion than that of the evolutionary force, for this latter is beginning to carry on with it certain characteristics from one type into another. Elements show affinity not only with those above it but also with those next before it on the spiral. The results seem in some ways to suggest the idea that an effort is being made to evolve certain features which shall when perfected be imposed upon all types. When we find two different attempts to build the same element it suggests two attempts one of which may be more suitable and therefore ultimately become permanent.

We find the central sphere of the chemical atom always increasing in size and importance until in the Radium group it seems to be the soul of the atom and the reason for which it exists—an active intensely *living* object rotating with wonderful rapidity, ever drawing in and throwing out streams of matter, and actually maintaining by its exertion a temperature higher than that of surrounding objects.

The process of making the elements is not even now concluded ; Uranium is the latest and heaviest element so far as we know (1912), but others still more complicated may perhaps be produced in the future.

A list of all the elements with the number of Anu in each, their weights and their characteristic shapes, is given later.

THE PERIODIC LAW (AFTER CROOKES) FIG. 12

In the line depicting a pendulum swinging backwards and forwards, all the elements are marked in their order of weight; the lightest, Hydrogen, beginning the pendulum swing, and the heaviest, Uranium, (and possibly one or more heavier, yet to be discovered) closing the swing. Among the upright lines is a middle one, and there are four on either side. If the middle perpendicular line represents *no* valency, and also interperiodicity, and if the four lines on either side of this median line represent Valency 1, Valency 2, Valency 3, and Valency 4; then, it is found, as the elements are mapped out in the order of their atomic weights, at the intersecting points of the pendulum line and the nine upright lines, that the element appear in order of Valency.

With a few exceptions, elements with similar external forms fall on the same vertical line. This may be seen on reference to Figure 12.

First come 4 elements which are formed before the swing of the pendulum begins. These are *ovoids*.

The Spike Group.—The atoms of each of the elements consist of a number of spikes radiating from a central globe in the centre of a plate-like form.

The Dumb-bell Group.—The atoms of this group consists of a central rod at the ends of which we find a globe. From each of the globes project 12 funnels. The whole making a form like a dumb-bell.

The elements in the dumb-bell and the spike group are those usually considered by chemists as having a characteristic valence of one or seven. They are found to right and left of the central line.

The Tetrahedron Groups.—The atoms of this group have four funnels, containing ovoid bodies, opening on the face of a tetrahedron. The funnels generally, but not always, radiate from a central globe. There are two tetrahedron groups at opposite sides of the central line of the pendulum swing. Their characteristic valence is two or six. The tetrahedron seems to be one of the favourite forms of nature and appears repeatedly in the internal structure. There are two tetrahedron groups, to right and left of the central line.

The Cube Group.—The cube appears to be the form of trivalent elements. It has six funnels containing ovoids and opening on the faces of the cube. There are two cube groups, at the left and right of the central line.

The Octahedron Group.—Here we find eight funnels opening on the eight faces of an octahedron. The elements are tetravalent. The two octahedron groups occur at the extreme left and right of the swing of the pendulum.

The Bars Group.—This is the characteristic shape of sets of three closely allied elements termed interperiodic. Fourteen bars, or seven crossed, radiate from a centre. This group occurs on the central line.

The Star Group.—A flat star, with five interpenetrating tetrahedra at the centre, is characteristic of this group, which comprises the inert gases. This group occurs on the central line.

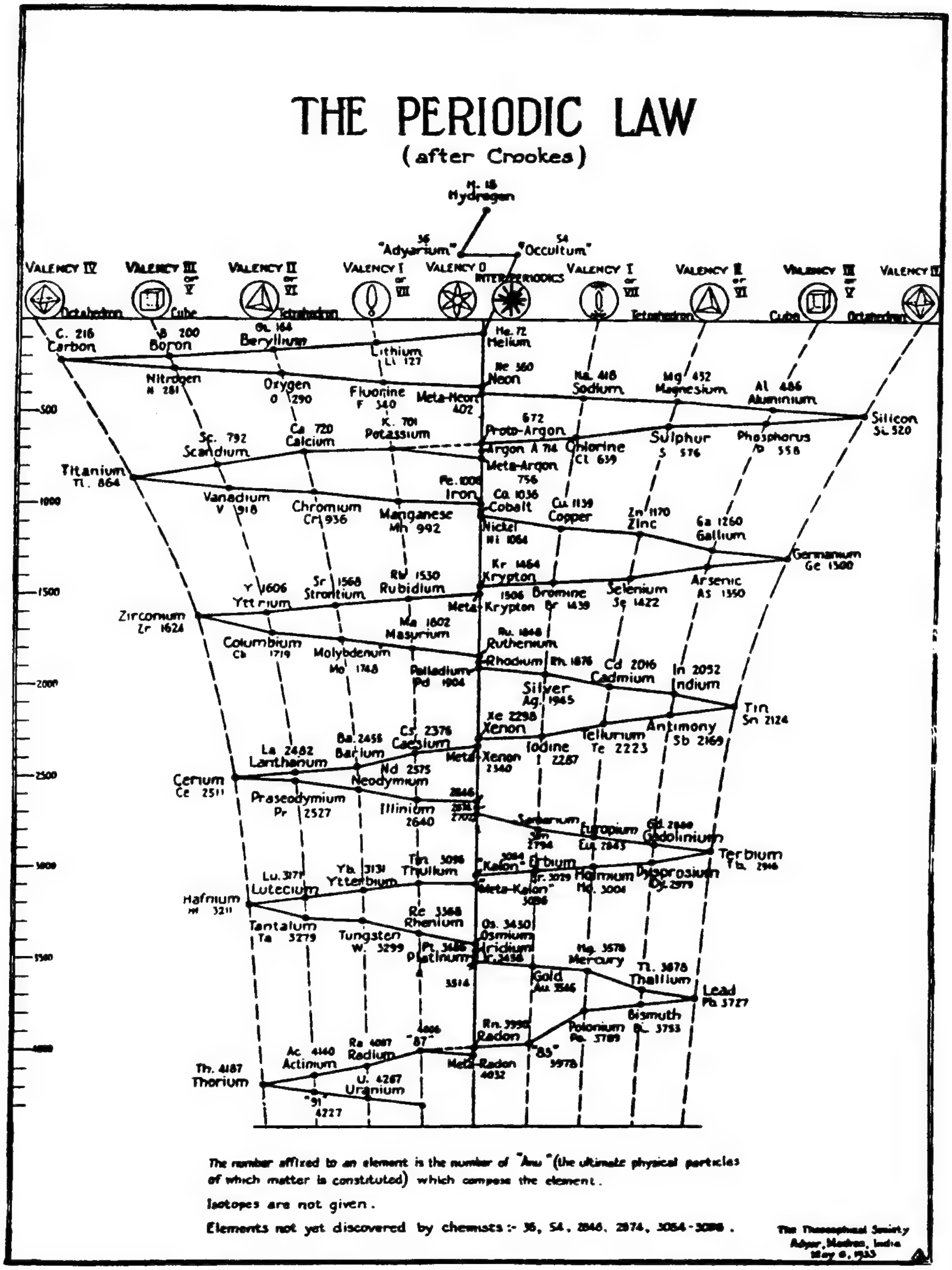

THE PERIODIC LAW
(after Crookes)
H. 18 Hydrogen
"Adyarium"
"Occultum"
VALENCY IV
VALENCY III or V
VALENCY II or VI
VALENCY I or VII
VALENCY 0
INTERPERIODICS
Octahedron
Cube
Tetrahedron
C. 216 Carbon
B 200 Boron
Beryllium
Lithium Li 127
He. 72 Helium
Nitrogen N 261
Oxygen O 290
Fluorine F 340
Meta-Neon 402
Ne 360 Neon
Na. 418 Sodium
Mg 432 Magnesium
Al 486 Aluminium
Silicon Si. 520
Sc. 792 Scandium
Ca 720 Calcium
K. 701 Potassium
Proto-Argon
Argon A 714
Meta-Argon 756
Chlorine Cl 639
Sulphur S 576
Phosphorus P 558
Titanium Ti. 864
Vanadium V 918
Chromium Cr 936
Manganese Mn 992
Fe. 1008 Iron
Co. 1036 Cobalt
Nickel Ni 1064
Cu 1139 Copper
Zn 1170 Zinc
Ga 1260 Gallium
Germanium Ge 1300
Kr 1464 Krypton
Meta-Krypton 1506
Bromine Br 1439
Selenium Se 1422
Arsenic As 1350
Y 1606 Yttrium
Sr 1568 Strontium
Rb 1530 Rubidium
Zirconium Zr 1624
Ma 1602 Masurium
Ru. 1848 Ruthenium
Columbium Cb 1719
Molybdenum Mo 1748
Palladium Pd 1904
Rhodium Rh. 1876
Cd 2016 Cadmium
In 2052 Indium
Silver Ag. 1945
Tin Sn 2124
Xe 2298 Xenon
Meta-Xenon 2340
Iodine I 2287
Tellurium Te 2223
Antimony Sb 2169
La 2482 Lanthanum
Ba. 2455 Barium
Cs 2376 Caesium
Nd 2575 Neodymium
Cerium Ce 2511
Praseodymium Pr 2527
Illinium 2640
Samarium Sm. 2794
Europium Eu. 2843
Gadolinium
Terbium Tb. 2946
Lu. 3171 Lutecium
Yb. 3131 Ytterbium
Tm. 3096 Thulium
"Kalon"
Erbium Er. 3029
"Meta-Kalon"
Holmium Ho. 3004
Dysprosium Dy. 2979
Hafnium Hf 3211
Tantalum Ta 3279
Tungsten W. 3299
Re 3368 Rhenium
Os. 3430 Osmium
Iridium Ir. 3458
Pt. 3486 Platinum
Hg. 3576 Mercury
Tl. 3678 Thallium
Gold Au. 3546
Lead Pb 3727
Bismuth Bi. 3753
Polonium Po. 3789
Rn. 3990 Radon
Meta-Radon 4032
"85" 3978
Ra 4087 Radium
"87"
Ac. 4140 Actinium
Th. 4187 Thorium
U. 4267 Uranium
"91" 4227
The number affixed to an element is the number of "Anu" (the ultimate physical particles of which matter is constituted) which compose the element.
Isotopes are not given.
Elements not yet discovered by chemists :- 36, 54, 2846, 2874, 3064-3096.

FIG. 12

NOTE BY C. JINARĀJADĀSA

In the address presented by Crookes to the Royal Institution in London, on February 18, 1887, he gave a diagram of the pendulum swing, marking the place of each element at certain points in his diagram. Later he made a model of the pendulum swing in three dimensions, with two lemniscates, Fig. 13. It occurred to me that it was possible to make a model of the Periodic Law with four lemniscates. This I did, carefully planning that each rod in the illustration should be pasted with millimetre paper so as to map accurately the elements according to their weights, Fig. 14. My object with this model of four lemniscates is that some day, by careful study of the diagrams of the elements in *Occult Chemistry*, future students would be able to make cross-lines joining one element with another, since the heavier elements particularly have many groups in common. In this model the interperiodic groups and the rare gases appear on the central line. The elements of the octahedron group appear on the four outermost lines. The other groups fall into their places between.

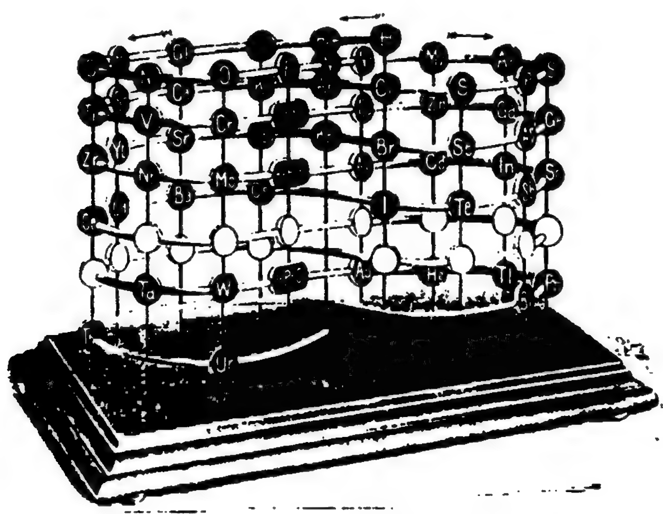


FIG. 13. THE PERIODIC LAW (CROOKES)

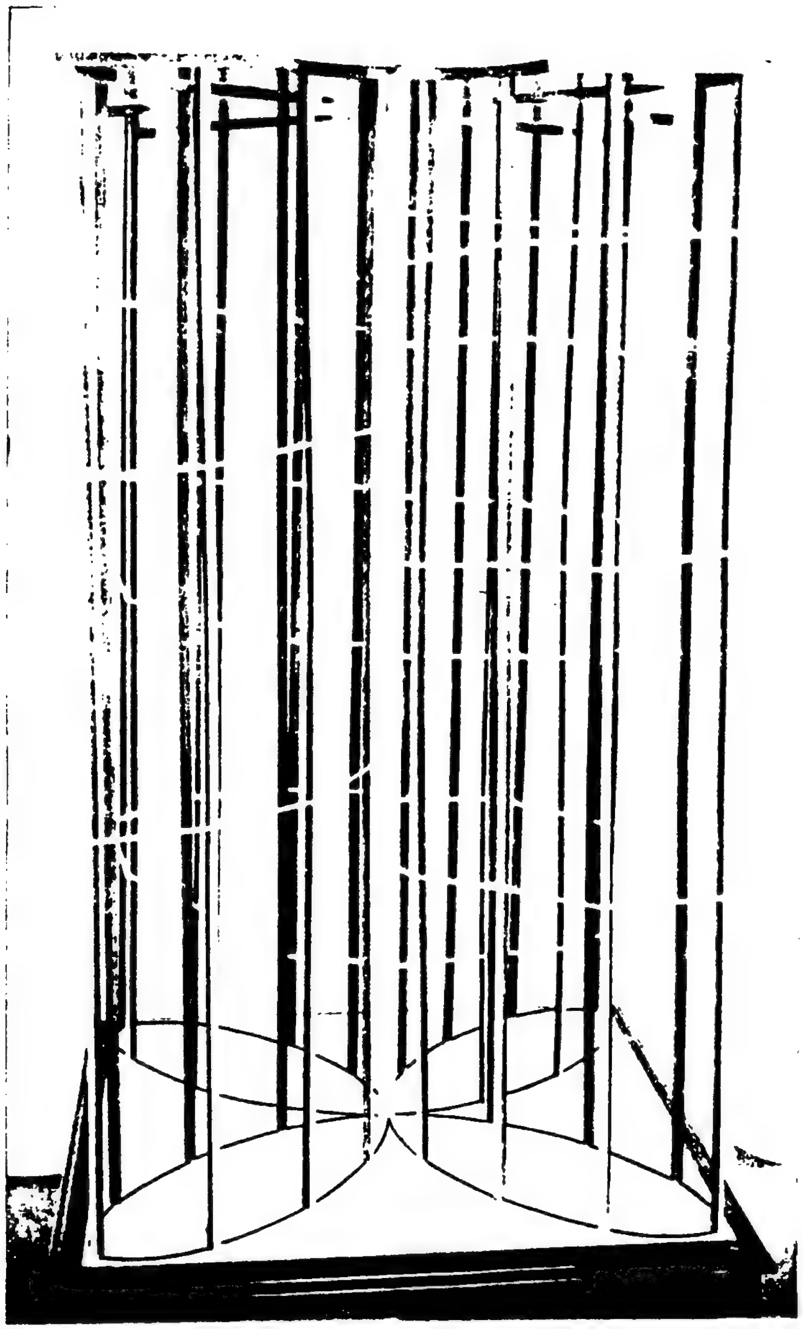


FIG. 14. THE FOUR LEMNISCATES

CHAPTER II

THE HYDROGEN GROUP

INTRODUCTORY

WE come now to the more detailed study of the elements, and shall consider the atoms in their groups according to the Periodic classification, using the pendulum diagram.

As has already been pointed out, the Anu group themselves into seven definite forms or types, though each chemical atom is surrounded by a sphere wall of the surrounding material, forming a sphere of influence. There are a few exceptions which are ovoid in shape.

Into the seven types the Anu are packed in a beautiful and ingenious fashion. On examining the internal structure of the atoms we find more or less complicated groups capable of separate, independent existence on the E4 level. These may be dissociated into yet simpler groups on the E3 level and again into groups at the E2 level until we arrive at the single ultimate physical atom or Anu.

The diagrams can give only a very general idea of the facts they represent. They give groupings and show relationships, but much effort of the imagination is needed to transform the two-dimensional diagram into the three dimensional object. The student should try to visualize the figure from the diagram. Thus the two triangles of Hydrogen are not in one plane; the circles are spheres and the Anu within them, while preserving to each other their relative positions, are in swift movement in three dimensional space.

Where five Anu are seen they are generally arranged with the central Anu above the four, and their motion indicates lines which erect four plane triangles meeting at their apices, on a square base, forming a square-based four-sided pyramid.

It is found that many of the groups in which the Anu are arranged constantly recur and are therefore common to many atoms, forming, as it were, the bricks or fundamental patterns from which their structures are built. The composition of each atom, therefore, can be expressed in terms of these constituent groups.

By this means the relationships between the elements in a given main group, and their similarities with other groups, is brought out. A method has been devised by which all the elements can be expressed in an algebraic formula by which the reader may realize the structure of the atoms as they are built up out of their constituent groups. Each constituent group is named after the first element in which it occurs. The letters indicating the element are followed by a number indicating the number of Anu in the group. Thus the Nitrogen 'balloon' becomes N 110 and the Lithium spike is represented by Li 63.

When the elements are analyzed in this way we can see how they are built up. In some cases alternative nomenclature is possible. We have endeavoured to select those constituent groups which best bring out the relationships. The method is used, too, in the large condensed diagrams and where the heavier elements would require too large a diagram if drawn in full.

From the list of all the elements, given at the end of the book, it can be seen that Hydrogen, Oxygen, Nitrogen and Fluorine, which appeared to be so different from the rest in their external forms, contain characteristic groups which form part of many other elements. From this list, too, we can follow the changes as the elements succeed one another in weight.

Each dot in a diagram represents a single Anu. The enclosing lines indicate the impression of form made on the observer and the groupings of the Anu. The groups will divide along these lines when the element is broken up, so that the lines have significance but they do not exist as stable walls or enclosing films but rather mark limits, not lines, ot vibration.

It should be specially noted that the diagrams are *not drawn to scale*, as such drawings would be impossible in the given space. The dot representing the Anu is enormously too large compared with the enclosures, which are absurdly too small; a scale drawing would mean an almost invisible dot on a sheet of many yards square.

So far as a chemical atom is concerned it does not matter whether it be drawn for investigation from a solid, a liquid or a gas; the atom does not alter its constitution by changing its state.

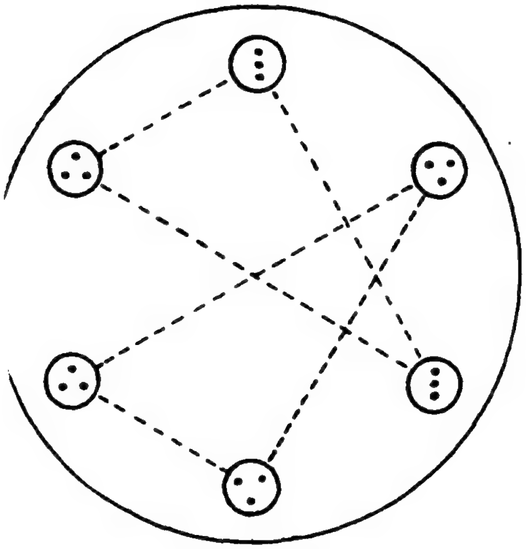
The internal arrangements of the atoms become much more complicated as they become heavier, as can be seen, for instance, in the complex arrangement necessitated by the presence of the 3,546 Anu contained in the chemical atom of Gold, as compared with the simple arrangement of the 18 Anu in Hydrogen.

THE HYDROGEN GROUP

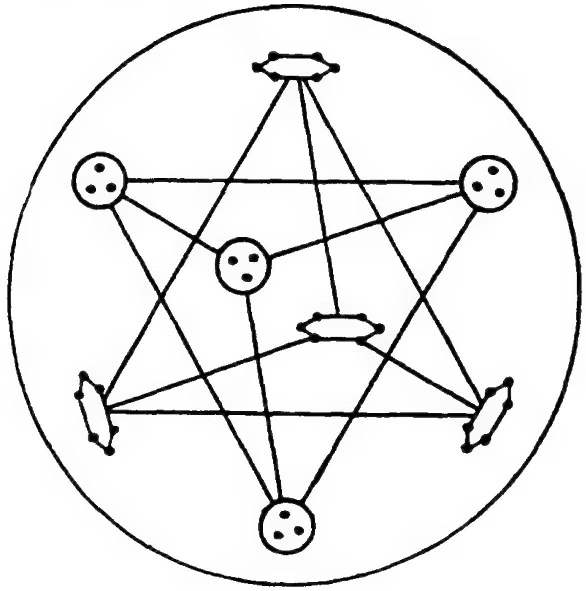
Before the pendulum begins its swing we find four elements; Hydrogen, Adyarium, Occultum and Helium. Hydrogen is the lightest element known to science. Adyarium and Occultum were first observed by clairvoyance. Helium is one of the rare gases and is usually associated with Argon. It does not conform to the shape of the inert gases, however, though it has some constituents in common. It is therefore grouped with the earlier, lighter elements. All four of these are ovoid in external shape.

Atomic No.	Number of Anu	Element	Analysis
1.	18	Hydrogen	(2H3' + H3) + (3H3)
1*a*.	36	Adyarium	4H3 + 4 Ad6
1*b*.	54	Occultum	2H3 + Ad 24 + Oc15 + Oc 9
2.	72	Helium	2H3 + (2H3' + H3) + (3H3) + 2Ad24

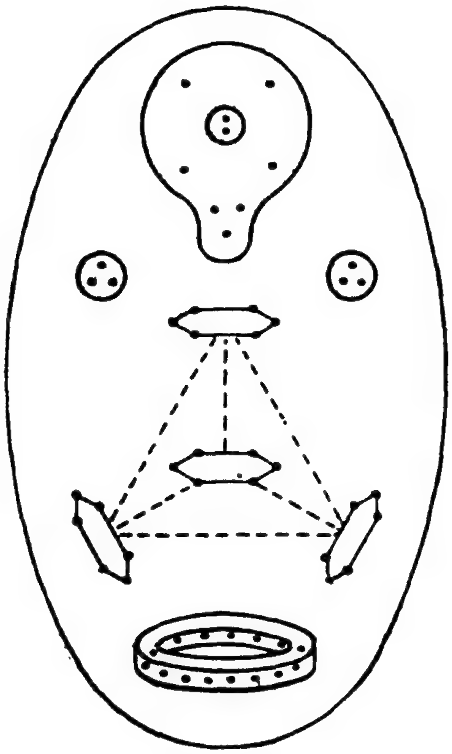
HYDROGEN GROUP



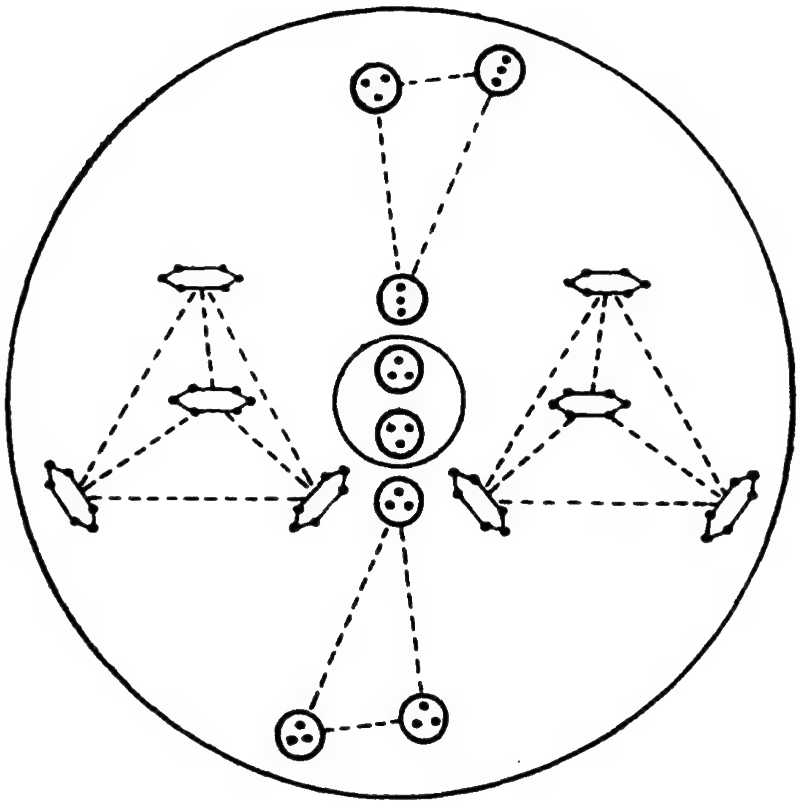
1 HYDROGEN



2 ADYARIUM



3 OCCULTUM



4 HELIUM

ATOMIC NO. 1

HYDROGEN

Hydrogen was the first chemical element examined and has already been discussed in Chapter I. The Hydrogen atom consists of 18 Anu arranged in 6 groups, each of 3 Anu, all contained in an oval form. The six groups are at six points in space; each of the three groups making one half of Hydrogen are linked to each other across space by lines of attraction. We have thus the appearance of two interlaced triangles. Figs. 1 and 15 show the details and linking.

Hydrogen atoms were not observed to move in pairs.

In 1908 diagrams were given of the two halves of Hydrogen, but no record was then made of the types of Anu, positive or negative, within each group of three. It was then presumed, from the general appearance of the groups, that all Hydrogen atoms were alike. In 1932, however, during a more detailed examination of the two Hydrogen atoms in a molecule of water, a second variety of Hydrogen was discovered.

Hydrogen Variety 1 is composed of two halves, a positive and a negative. On examining Fig. 16 it will be seen that the positive half or triangle is composed of 5 positive Anu and 4 negative, thus making it preponderatingly positive; and that the negative half or triangle is composed of 5 negative Anu and 4 positive, thus making it preponderatingly negative.

The six groups are not all alike; they each contain three Anu, but in four of the groups the three Anu are arranged in a triangle, and in the remaining two in a line. To these small groups we have given the identifying symbols H3 and H3'.

In one large triangle all the three small groups have their Anu in the form of a triangle, while in the other large triangle two of the groups of three Anu are in a straight line and one in the form of a triangle. In the first edition of Occult Chemistry the two linear triplets are shown as being one in each triangle. Fig. 2. This variety was *not* observed by Mr. Leadbeater in 1932 and appears to be rare. The common variety is that described above and shown in Fig. 16.

Hydrogen Variety 2 differs in the number of positive and negative Anu forming the atom. In the first variety there are a total of 9 positive and 9 negative Anu, in the second variety we find 10 positive and 8 negative. This variety is therefore predominatingly positive. Fig. 17.

In the molecule of water, H_2O, one Hydrogen atom is of the first variety and the other of the second variety.

Hydrogen = (2H3' + H3) + (3H3)

6 spheres of 3 Anu = 18 Anu

Number weight $\frac{18}{18}$ = 1.00

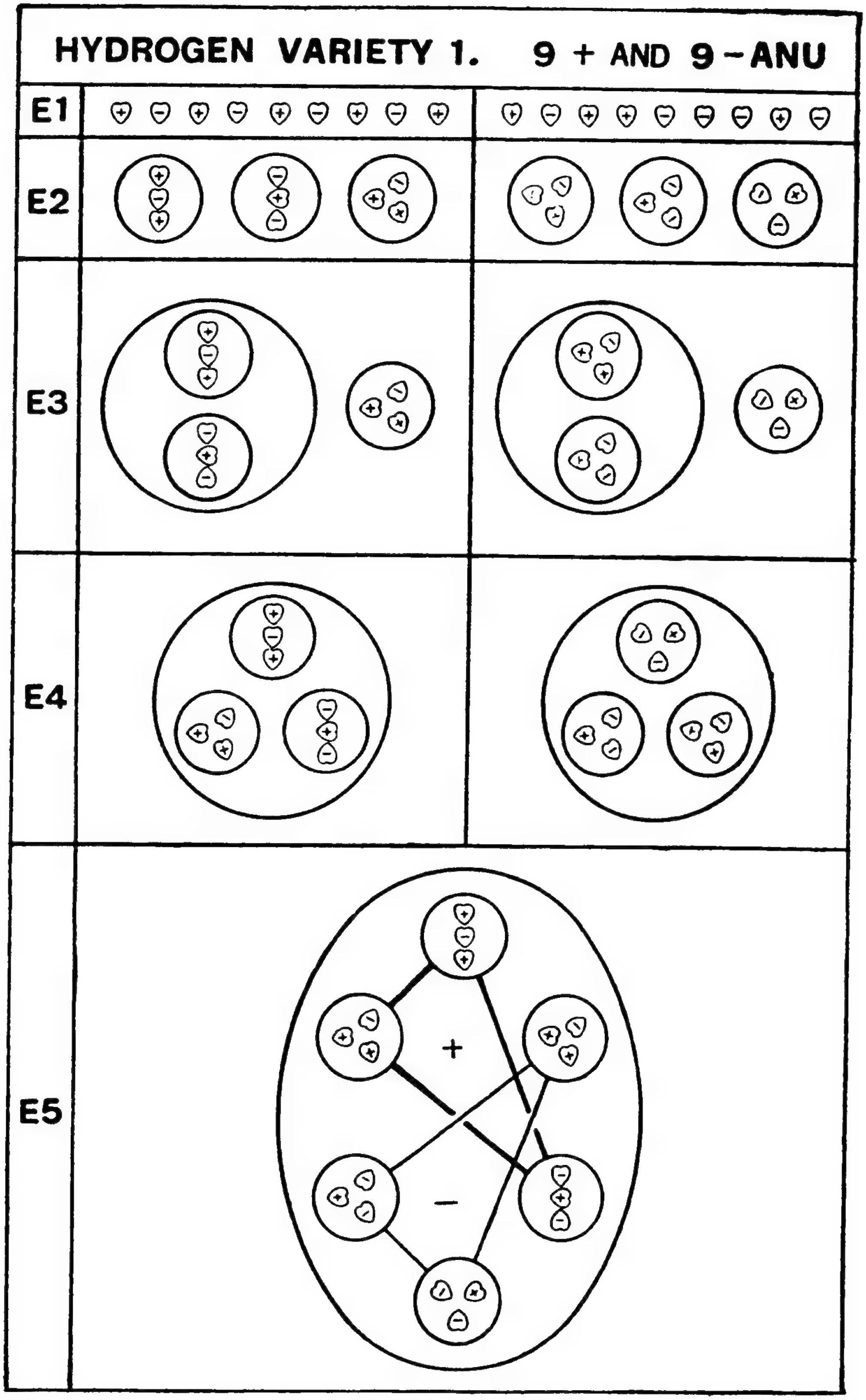


FIG. 16

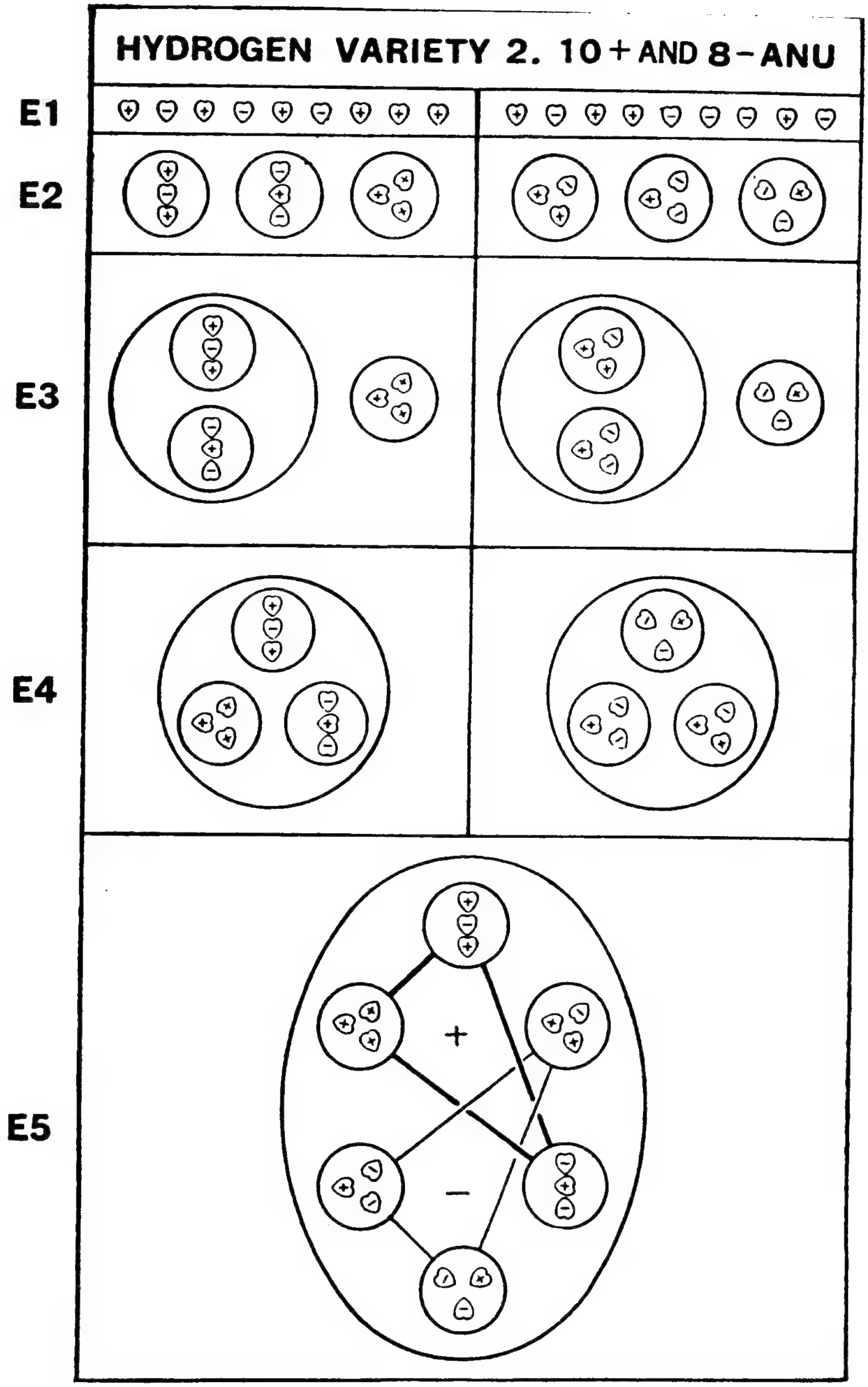


FIG. 17

Deuterium. During observations on the electrolysis of water a very few examples of two Hydrogen atoms united in a temporary alliance were seen. These two atoms were of varieties 1 and 2 and placed themselves at right angles to each other as in Fig. 18. This group of two Hydrogen atoms would have double the weight of ordinary Hydrogen, as is required for Deuterium.

Heavy Hydrogen—Deuterium

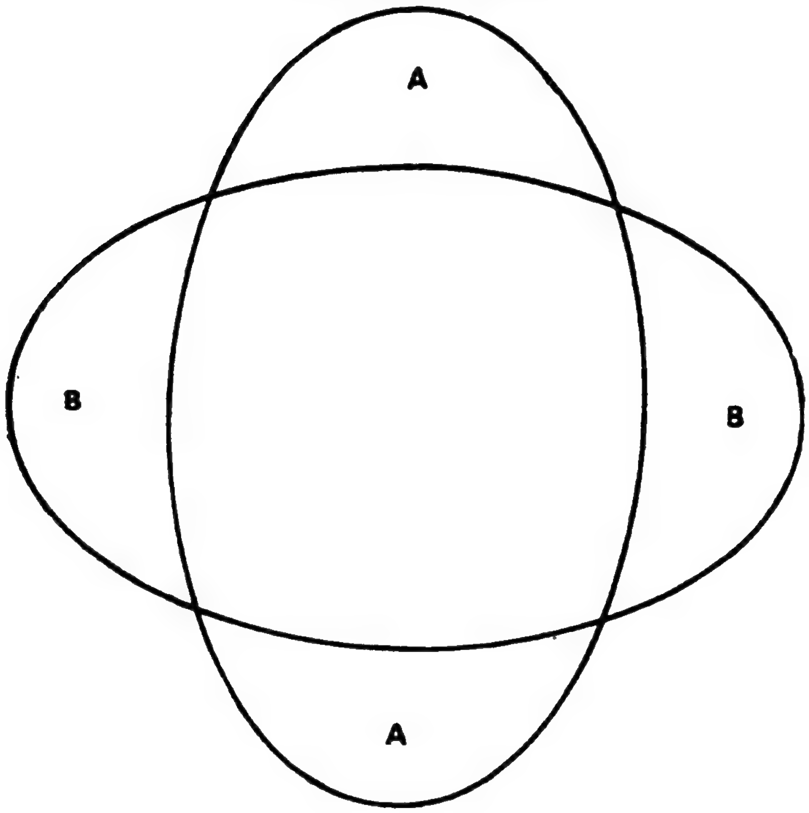


FIG. 18

ATOMIC NO. 1A.

ADYARIUM

The discovery of this very light gas of atomic weight 2 (H=I), was announced in *The Theosophist*, December 1932. The external shape of the atom is spherical and it consists of 36 Anu. Twelve of these are divided into four groups of H3, one of which is placed at each of the four corners of a tetrahedron. Interlaced with this tetrahedron is a second containing four groups of six Anu. Fig. 15. Here we meet two forms which occur very often. First the group of six Anu arranged in the shape of a 'cigar' or elongated hexagon or prism. This we distinguish as Ad6. This form revolves with extreme rapidity around its longitudinal axis, and looks like a pencil sharpened at both ends. It appears to be strongly coherent, for, as will be seen later, its six Anu remain attached to each other on the E3 level, and even when divided into triplets on the E2 level these revolve around each other.

In Adyarium four of these prisms are placed at the corners of a tetrahedron, thus forming the larger group which also occurs very often and which is distinguished as Ad 24.

It will be seen that the two groups of four bodies each form tetrahedrons, that is to say, their respective positions in space, as they individually revolve within the sphere-wall of the element, are those marked out by the eight corners of two interlaced tetrahedrons.

Adyarium is rare in the atmosphere at the earth's surface, but it exists in greater quantity in the stratosphere. Like Hydrogen, it is being slowly lost to our atmosphere by radiation during the earth's journey round the Sun. But the rays of light from the Sun are combining sub-elements all the time, and the lost elements are being replaced by the new creations.

As this element was first observed by clairvoyant magnification at Adyar, we have called it Adyarium.

Adyarium = 4 H3 + 4 Ad6 " Ad12 + Ad24

4 H3 =	12 Anu
4 Ad6 =	24 „
Total =	36 Anu

Number weight $\frac{36}{18} = 2.00.$

ATOMIC NO. 1B.

OCCULTUM

Occultum was first observed in 1895 and, finding that it was so light and so simple in its composition, it was thought that it might be Helium, of which it was not possible at that time to obtain a sample. When, however, Helium itself came under observation in 1907, it proved to be quite dlfferent from the object previously observed, so the gas observed in 1895 was called Occultum, until orthodox science should find it.

This element consists of 54 Anu and contains groups from Hydrogen and Adyarium. It is ovoid in shape. Fig. 15.

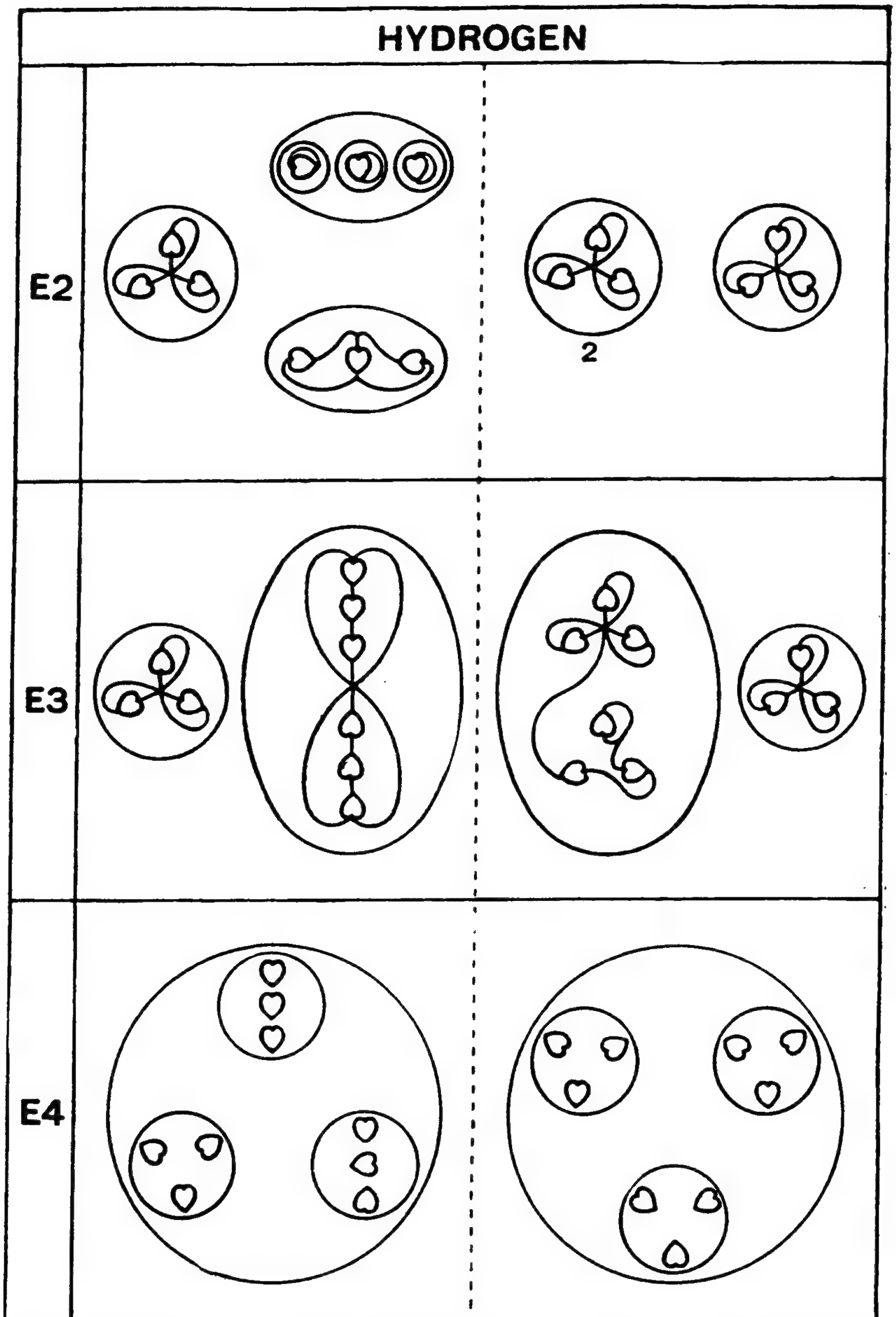
We here meet the tetrahedron, Ad 24, as in Adyarium. Above the tetrahedron is a balloon-shaped figure, Oc9, apparently drawn into shape by the attraction of the tetrahedron. The body below the tetrahedron looks like a coil of rope, and contains fifteen Anu, Oc15. They are arranged on a slanting disc in a flat ring and the force goes in at the top of one Anu, and out of the bottom of it into the top of the next, and so on, making a closed circuit. The two little spheres, each containing a triplet, are like fill-up paragraphs to a compositor—they seem to be kept standing and popped in where wanted.

The constituents of Occultum reappear in Gold and other elements.

Occultum = 2 H3 + Ad 24 + Oc15 + Oc 9.

Tetrahedron	=	24	Anu
Balloon	=	9	"
Triplets	=	6	"
Ring	=	15	"
Total	=	54	Anu

Number weight $\frac{54}{18}$ = 3.00



DISINTEGRATION OF HYDROGEN VARIETY 1

ATOMIC NO. 2

HELIUM

Helium is different in configuration from the other inert gases. It is made up of the whole of Hydrogen and a good deal from Adyarium. It is ovoid in shape and not in the form of a six-pointed star as are the other inert gases, and it is therefore included in this preliminary group. Fig. 15 shows that the four elements in this group are closely related.

The two triangles of Hydrogen appear in Helium and two Ad 24 tetrahedrons. The tetrahedrons revolve round an egg-shaped central body consisting of two H3 spheres, and the triangles spin on their own axes while performing a similar revolution Helium is completely balanced, that is to say, it is seemingly self-sufficient; a positive tetrahedron of 4 Ad6 groups is counterbalanced by a similar tetrahedron which is negative. A positive half of Hydrogen is satisfied with a negative half and in the centre of all the two groups of 3 Anu, being positive and negative, satisfy each other.

The whole has an attractive airy appearance, as of a fairy element.

Helium = 2H3 + 2 Ad24 + (2H3' + H3) + (3H3)

Centre	= 6	Anu
2Ad24	= 48	"
2 Triangles	= 18	"
Total	= 72	Anu

Number weight $\frac{72}{18} = 4.00$

THE DISINTEGRATION OF THE HYDROGEN GROUP

HYDROGEN

On the E4 level the six bodies contained in the gaseous atom instantaneously re-arrange themselves within two spheres; the two linear triplets unite with one triangular triplet, holding to each other relative positions which, if connected by three straight lines, would form a triangle with a triplet at each angle; the remaining three triangular triplets similarly arrange themselves in the second sphere. These form the E4 compounds of Hydrogen.

In the dissociation of these to *the E3 level*, each sphere breaks up into two, the two linear triplets joining each other and setting free their triangular comrade. Two of the triangular triplets similarly remain together, casting out the third, so that Hydrogen yields four E3 compounds.

On the E2 level, the connexion between the double triplets is broken, and they become four independent groups, two remaining linear, but rearranging their internal relations; the two remaining groups are triplets.

The final dissociation sets all the Anu free. Figs. 16 and 19.

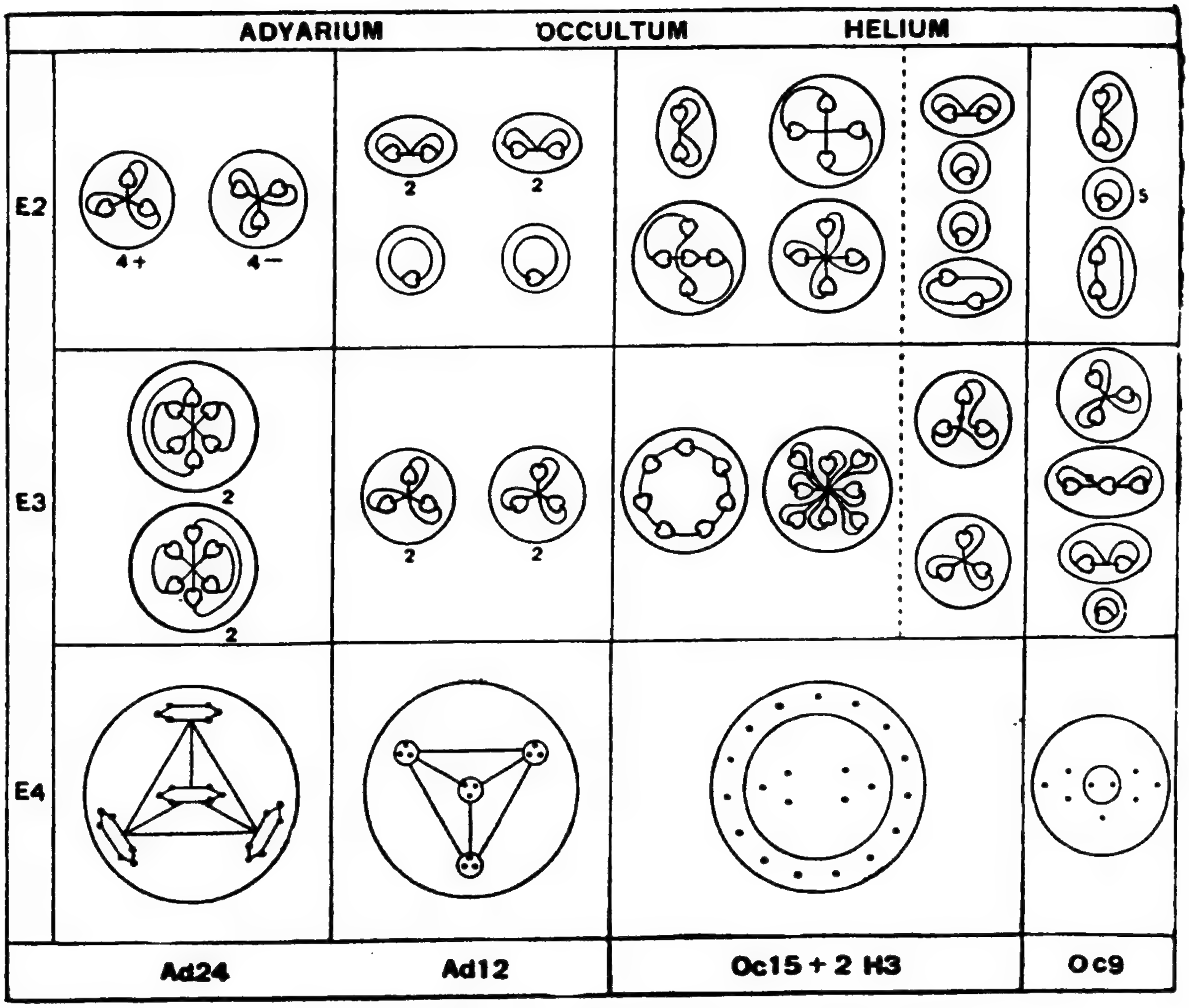


FIG. 20. DISINTEGRATION OF ADYARIUM, OCCULTUM AND HELIUM

DISINTEGRATION OF ADYARIUM

On the E4 level Adyarium sets free the two tetrahedrons Ad24 and Ad12.

On the E3 level the Ad24 gives 4 sextets, 4 Ad6, two positive and two negative; while the Ad12 gives 4 triplets.

On the E2 level each Ad6 gives two triplets, making 8 triplets in all.

The triplets from the Ad12 each give a duad and a unit, thus liberating four duads and four units.

DISINTEGRATION OF OCCULTUM

The tetrahedron, Ad24, acts as in Adyarium *on the E4 level* and separates as a whole, with its 4Ad6, flattening itself out within its hole. Two of the Ad6 are positive and two negative.

On further dissociation to the E3 level, the Ad6 go off independently, showing two types. These again divide into triplets on the E2 level.

The ring, Oc15, becomes a ring within a sphere and the two triads 2H3, which are loose in the gaseous atom, come within this ring. On the E3 level the ring casts out the two triads, which become independent triplets, and the ring breaks into two, a close ring of seven Anu and a double cross of eight.

These subdivide again to form E2 compounds, the ring yielding a quintet and a pair, and the double cross separating into its two parts.

The two triplets each cast out an Anu on dissociation to E2 and form two pairs and two units.

The balloon, Oc9. On the E4 level the balloon becomes a sphere. On the E3 level it is much divided, the cohesion of its parts being slight. It forms two triplets, a pair and a unit. On the E2 level these set free, on further dissociation, no less than five separate Anu and two duads.

DISINTEGRATION OF HELIUM

Helium, being composed of the constituents of Hydrogen, Adyarium and Occultum, breaks up as do these elements.

On the E4 level we find two spheres each containing three triplets as in Hydrogen and two tetrahedrons, Ad24. In addition there is a globe containing two small spheres, 2 H3.

On the E3 level the Hydrogen triplets break up as in Fig. 19 and the two Ad24 as shown in Fig. 20. The globe containing the two H3 liberates the two triplets on the E3 level.

On the E2 level the disintegration proceeds as shown in Figs. 19 and 20.

CHAPTER III

THE SPIKE GROUP

ALL the eleven elements in this group occur on the left-hand swing of the pendulum. They are all of the spike type, somewhat similar to the diagram in Fig. 21, which is that of Lithium. In most cases, however, there are a number of spikes of equal size, instead of one large spike and a number of smaller petals as in Lithium. Fluorine does not conform to the type since its spikes are reversed.

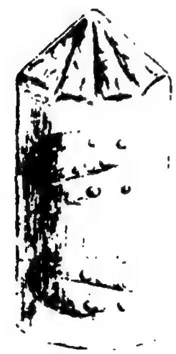
From Potassium onwards the constituent group N 110 appears as the centre from which the spikes radiate. The most striking component in all the elements of this groups is that termed the Lithium spike, Li 63.

How, with this Li 63 and N 110 as units, the elements of this family are generated can be studied from the diagrams. Of course, additional smaller bodies are brought in but a wonderful symmetry appears, as if a Grand Geometrician were indeed the Builder.

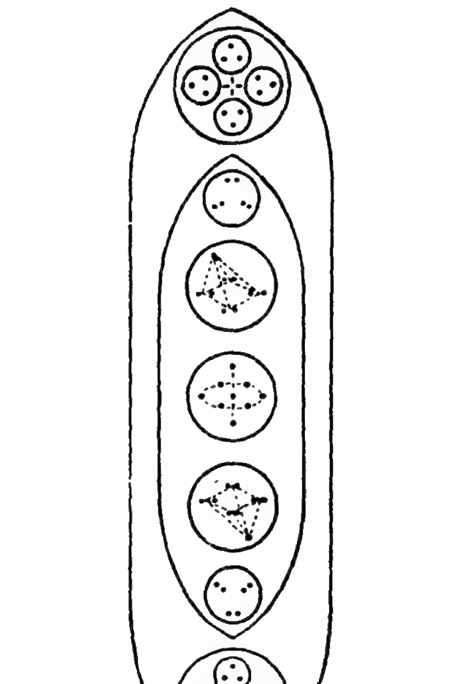
THE SPIKE GROUP

ATOMIC NO.	ANU	ELEMENT	CENTRE	SPIKES
3	127	Lithium	4 Li 4	1 (Li 63) + 8 Ad 6
9	340	Fluorine	2 N 110	8 (2 Be 4 + H 3' + Li 4)
19	701	Potassium	N 110+6 Li 4	9 (Li 63)
25	992	Manganese	N 110	14 (Li 63)
37	1,530	Rubidium	3 N 110	16 (Li 63 + Rb 12)
43	1,802	Masurium	3 N 110	16 (Li 63 + Ma 29 (a or b)
55	2,376	Caesium	4 N 110	16 (Li 63 + 2 Ma 29 a)
61	2,640	Illinium	4 N 110	16 (2 Li 63 + Il 9 or Il 14)
	2,736	Il. Isotope	4 N 110	16 (2 Li 63 + Il 17 or Il 18)
69	3,096	Thulium	4 N 110	16 (2 Li 63 + Tm 40)
73	3,368	Rhenium	4 N 110	16 (2 Li 63 + Re 57)
87	4,006	87	5 N 110	16 (3 Li 63 + 87.27)

LITHIUM



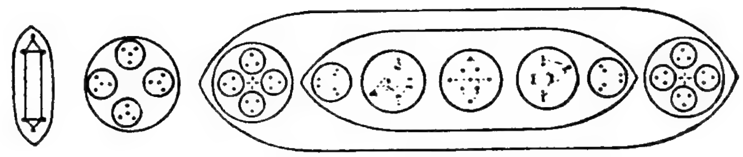
FLUORINE



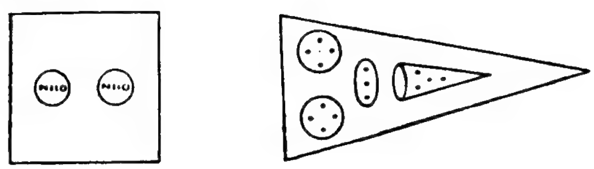
LITHIUM

FIG. 21. ELEMENTS SPIKE GROUP

LITHIUM



FLUORINE



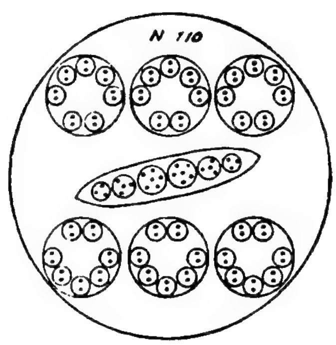


FIG. 22. LITHIUM, FLUORINE

ATOMIC NO. 3.

LITHIUM

Lithium is a striking and beautiful form, with its upright cone, or spike, its eight radiating petals at the base of the spike; and the plate-like support, in the centre of which is a globe on which the spike rests. The spike revolves swiftly on its axis, carrying the petals with it: the plate revolves equally swiftly in the opposite direction.

The central globe contains four small spheres, each of 4 Anu. These spheres are identified as Li4.

The spike contains two globes and a long ovoid; the spheres within the globe revolve as a cross. Within the ovoid are five spheres. In four of these the Anu are arranged as a tetrahedron. The central sphere has an axis of three Anu surrounded by a spinning wheel of six. This spike occurs in all the members of this family and since it contains 63 Anu in all, has been distinguished in our diagrams and for purposes of reference, as Li63.

Lithium = 4Li4 + 1Li63 + 8Ad6

Central globe	=	16	Anu
Spike of 63 Anu	=	63	"
8 petals of 6 Anu	=	48	"
Total	=	127	Anu

Number weight $\frac{127}{18} = 7.06$

ATOMIC NO. 9.

FLUORINE

Fluorine is a most peculiar object like a projectile. The 8 spikes, reversed funnels coming to a point, are partly responsible for this warlike appearance.

Each spike contains four small groups, three tetrads and a triplet.

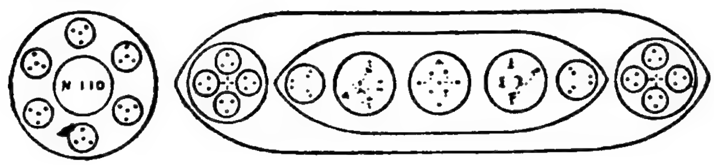
The cylindrical body is occupied by two spheres each containing 110 Anu As this group occurs first in Nitrogen it is identified as N110. Fig. 22.

Fluorine = 2N110 + 8 (2Be4 + H3' + Li4)

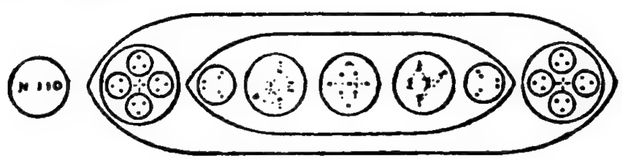
2 N 110 spheres	=	220	Anu
8 spikes of 15 A	=	120	"
Total	=	340	Anu

Number weight $\frac{340}{18} = 18.8\dot{8}$

POTASSIUM



MANGANESE



RUBIDIUM

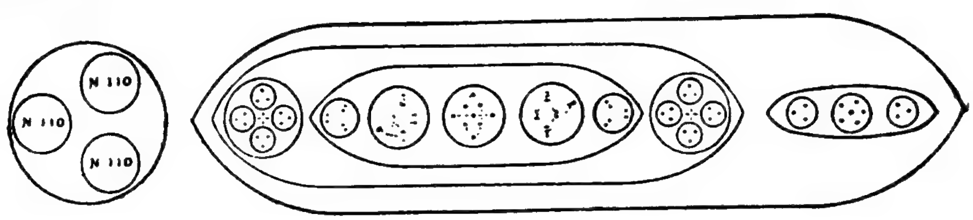


FIG. 23. POTASSIUM, MANGANESE, RUBIDIUM

ATOMIC NO. 19

POTASSIUM

Potassium resembles Lithium in its arrangement except that it has 9 Li63 spikes instead of 1 spike and 8 petals. Its *central globe* is larger and consists of a central sphere, N110, encircled by 6 small spheres of 4 Anu.

Potassium = (N110 + 6Li4) + 9Li63

Central globe	=	134	Anu
9 Spikes of 63 Anu	=	567	„
Total	=	701	Anu

Number weight $\frac{701}{18} = 38.94$

ATOMIC NO 25

MANGANESE

Manganese resembles Potassium but it consists of 14Li63 spikes radiating from a *central globe* N110.

Manganese = N110 + 14Li63

Central globe	=	110	Anu
14 Spikes of 63 Anu	=	882	„
Total	=	992	Anu

Number weight $\frac{992}{18} = 55.11$

ATOMIC NO 37

RUBIDIUM

Rubidium is built on the same pattern as Manganese but contains 16 spikes.

Each spike consists of the Li63 group and a smaller ovoid containing two triplets and a sextet.

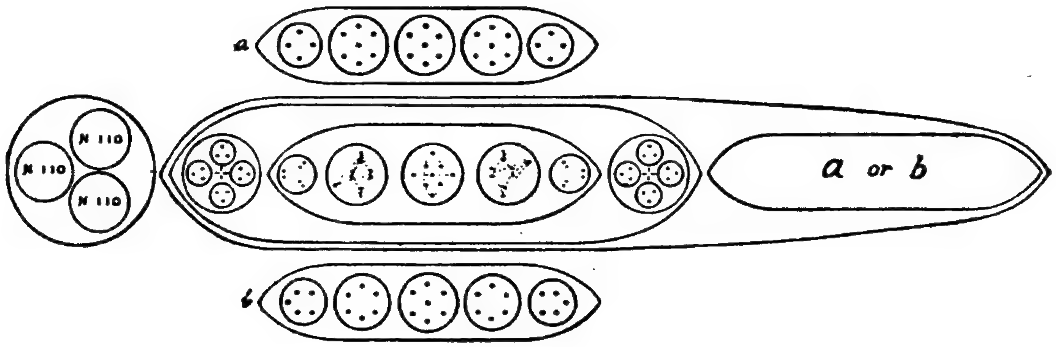
The central globe of Rubidium is composed of three N110 spheres.

Rubidium = 3N110 + 16(Li63 + Rb12)

Central globe	=	330	Anu
16 Spikes of 75 Anu	=	1200	„
Total	=	1530	Anu

Number weight $\frac{1530}{18} = 85.00$

MASURIUM



CAESIUM

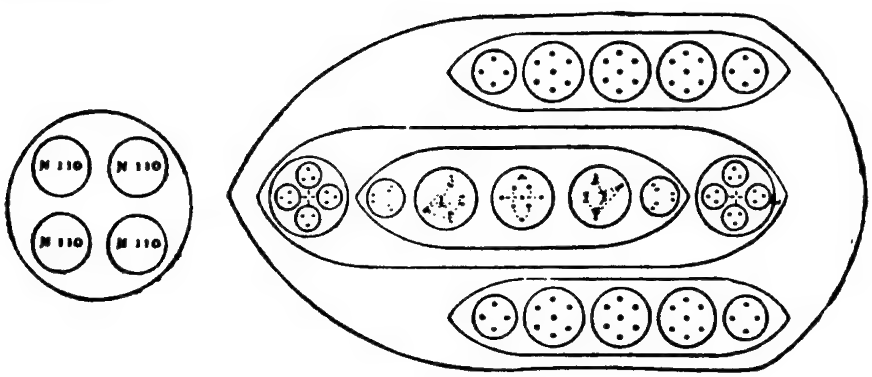


FIG. 24. MASURIUM, CAESIUM

ATOMIC NO. 43.

MASURIUM

Masurium was recorded by clairvoyant observation in 1909 and discovered spectroscopically in 1931. There are two varieties, each containing the same total number of Anu.

Like Rubidium, Masurium, has sixteen spikes. *Each spike* contains the Li63 group and an ovoid. The ovoids each contain 29 Anu, but in different atoms these vary in their arrangements, as shown in Fig. 24.

The central globe contains three N110.

Masurium .. 3N110 + 16 [Li63 + Ma29 (a or b)]

Central globe	=	330	Anu
16 Spikes of 92 Anu	=	1472	"
Total	=	1802	Anu

$$\text{Number weight } \frac{1802}{18} = 100.11$$

ATOMIC NO 55

CAESIUM

Caesium is in many ways similar to its predecessors. It contains sixteen *spikes*, each consisting of one Li63 and two smaller ovoids of 29 Anu similar to those in the *a* variety of Masurium.

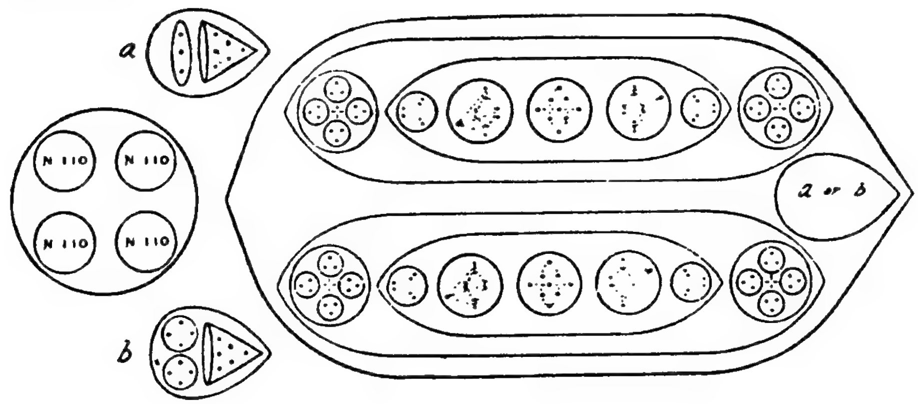
The central globe consists of four N110 groups.

Caesium = 4N110 + 16 (Li63 + 2 Ma29a)

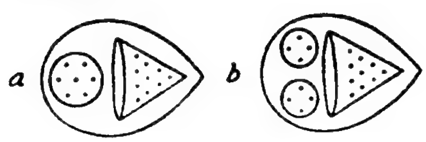
Central globe	=	440	Anu
16 Spikes of 121 Anu	=	1936	"
Total	=	2376	Anu

$$\text{Number weight } \frac{2376}{18} = 132.00$$

ILLINIUM



ISOTOPE



THULIUM

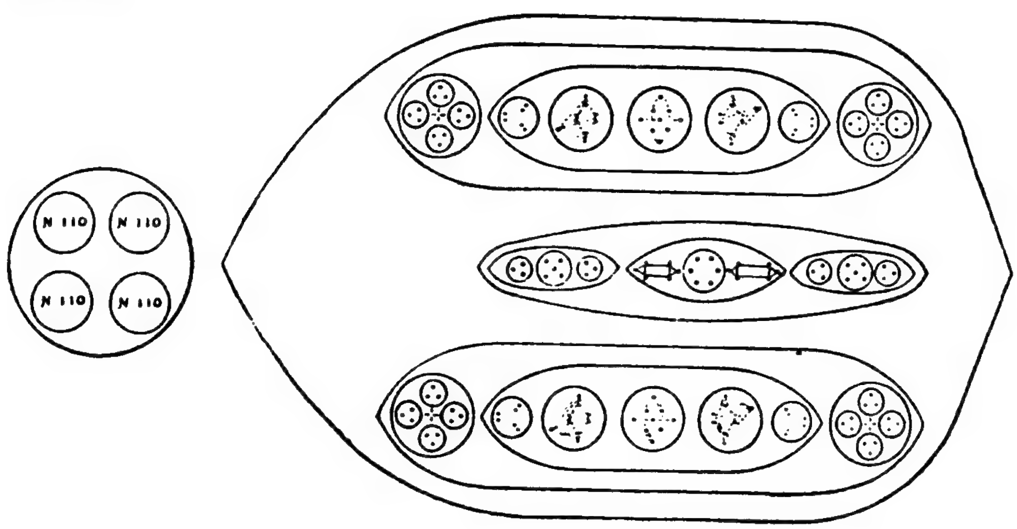


FIG. 25. ILLINIUM, THULIUM

ATOMIC NO 61

ILLINIUM

Illinium also contains sixteen *spikes*, but each contains two Li63 groups and a tiny floating cap. Alternate spikes have caps of nine and fourteen Anu respectively.

The *central globe* contains four N110 groups.

Illinium -- 4N110 + 16 (2Li63 + Il.9 or Il.14)

Central globe		440	Anu
8 spikes of 135 Anu		1080	,,
8 ,, ,, 140 Anu		1120	,,
Total	-	2640	Anu

Number weight $\frac{2640}{18}$ 146.66

ISOTOPE OF ILLINIUM

A curious fact is that a single atom of Illinium was found which appears to be a variant of Illinium ; an absolutely unique specimen, identical with Illinium except that the two little caps contain seventeen and eighteen Anu respectively, instead of nine and fourteen. This gives a total of 2736 Anu which would give a number weight of 152.

Illinium b 4N110 + 16 (2Li63 + Il.17 or Il.18)

Central globe	=	440	Anu
8 spikes of 143 Anu	=	1144	,,
8 ,, ,, 144 Auu	=	1152	,,
Total	=	2736	Anu

Number weight $\frac{2736}{18}$ = 152.00

ATOMIC NO 69

THULIUM

Thulium is another sixteen spike element.

Each *spike* consists of two Li63 groups revolving round a smaller central column of 40 Anu. This central column contains three ovoids.

The central globe contains four N110 groups.

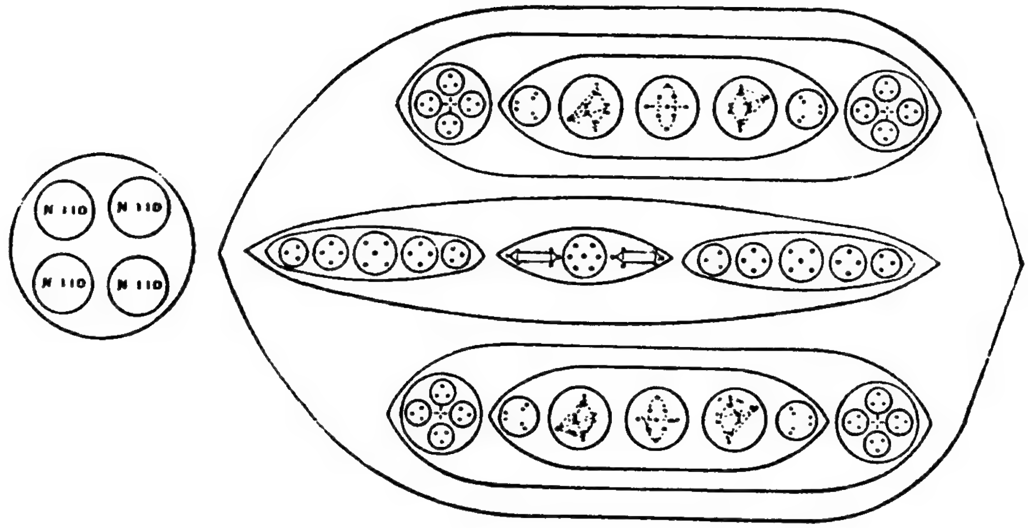
It is noteworthy that Thulium contains exactly the same number of Anu as the isotope of Kalon, Meta-Kalon.

Thulium = 4N110 + 16 (2Li63 + Tm40).

Central globe	=	440	Anu
16 spikes of 166 Ann	.	2656	,,
Total		3096	Anu

Number weight $\frac{3096}{18}$ = 172

RHENIUM



87

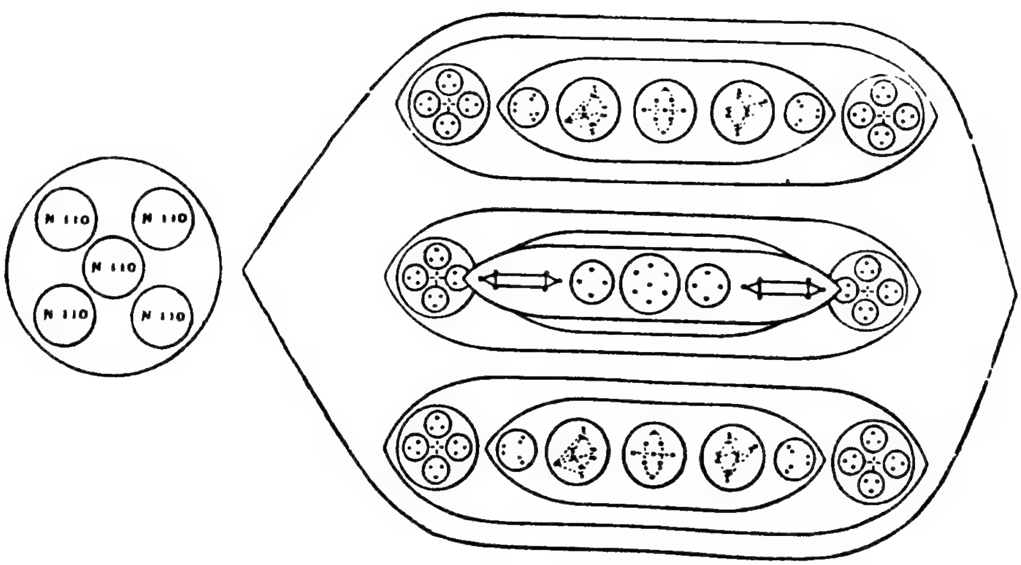


FIG 26. RHENIUM, NO. 87

ATOMIC NO. 75.

RHENIUM

Rhenium was examined in 1931, having been isolated by science in 1922.

It contains sixteen spikes. Each *spike* is composed of two Li63 groups and a third ovoid containing 57 Anu.

The central globe is composed of four N110 groups.

Rhenium = 4N110 + 16 (2Li63 + Re57)

Central globe	=	440	Anu
16 spikes of 183 Anu	=	2928	"
Total	=	3368	Anu

Number weight $\frac{3368}{18}$ = 187.11

ATOMIC NO. 87.

87

This element, with atomic number 87, was reported by science in 1930. It is very unstable.

It contains sixteen spikes, each *spike* being composed of three Li63 groups and a fourth ovoid containing 27 Anu.

The central globe contains 5N110.

87 = 5N110 + 16 (3Li63 + 87.27)

Central globe	=	550	Anu
16 spikes of 216 Anu	=	3456	"
Total	=	4006	Anu

Number weight $\frac{4006}{18}$ = 222.55

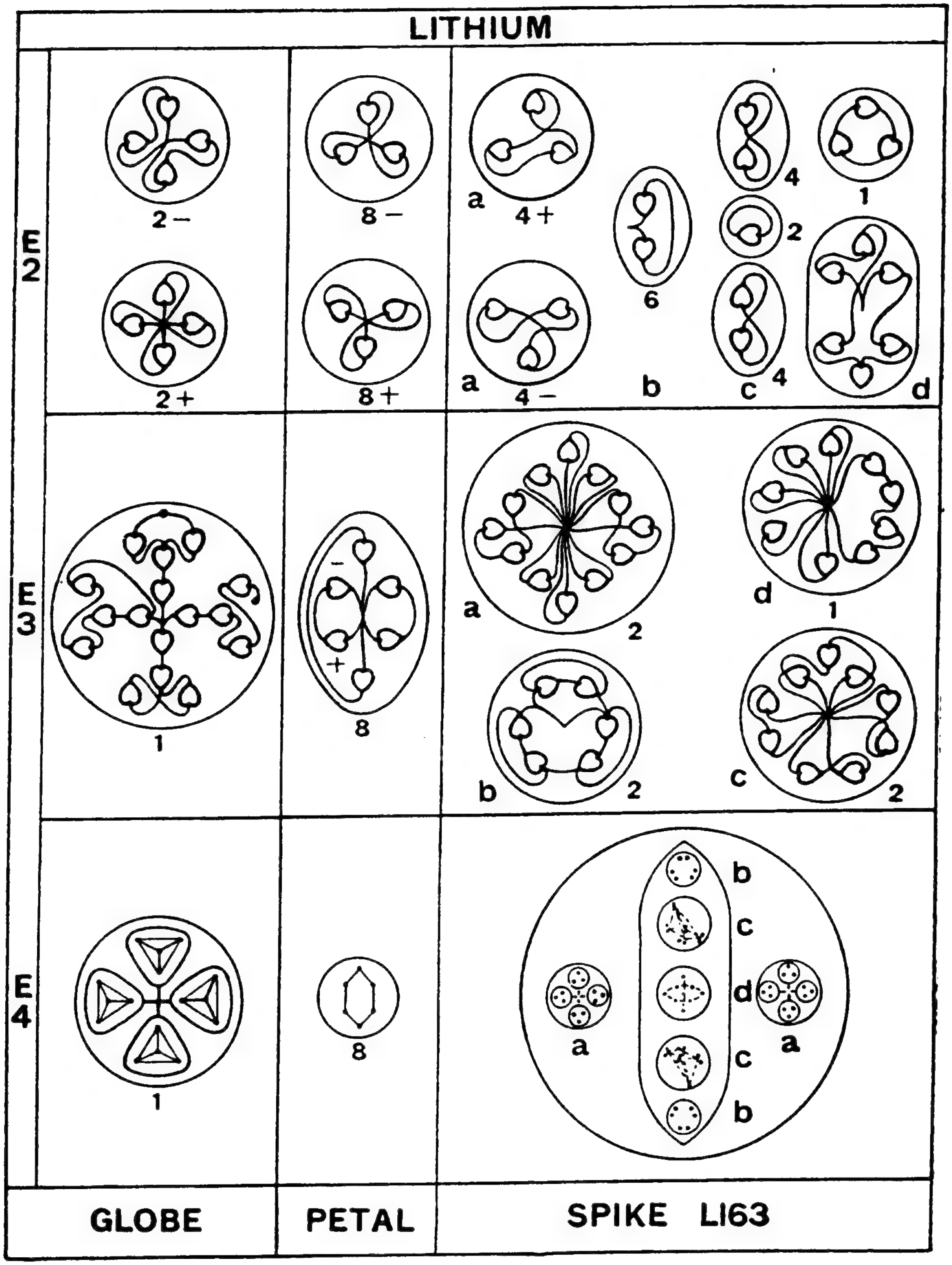


FIG. 27. DISINTEGRATION OF LITHIUM

DISINTEGRATION OF ELEMENTS OF THE SPIKE GROUP

Lithium, Fluorine, Potassium and Rubidium are the only elements in this group dealt with in detail.

DISINTEGRATION OF LITHIUM

The Lithium atom first breaks up on the E4 level into a globe, eight petals and one spike. Fig. 27.

The Globe. 4Li4. On the E4 level this forms a sphere containing 16 Anu arranged as four tetrahedrons.

On the E3 level these become a group of sixteen Anu.

On the E2 level four quartets are liberated, two positive and two negative.

The Petal. Ad6. This group is identical with the Ad6 'cigar' or prism already dealt with under Adyarium. On the E4 level eight of these are liberated.

On the E3 level they give positive and negative sextets.

On the E2 level each sextet gives two triads, one positive and one nega[illegible]

The Spike. Li63. On the E4 level the spike rearranges itself so as [illegible] having the ovoid in the centre and the small spheres to left and right of it.

On the E3 level the spike breaks up into seven bodies.

(*a*) Two groups, each of 12 Anu
(*b*) Two groups, „ of 6 „
(*c*) Two groups, „ of 9 „
(*d*) One group, of 9 „

On the E2 level further disintegration occurs.

Each (*a*)	gives 4 triads, 4 positive and 4 negative,	8 groups	in all
„ (*b*)	„ 3 duads	6 „	in all
„ (*c*)	„ 4 duads and a unit . . .	10 „	in all
„ (*d*)	„ a sextet and a triplet . . .	2 „	in all

Thus the total number of bodies on the E2 level is twenty-six.

On the E1 level all break up into single Anu.

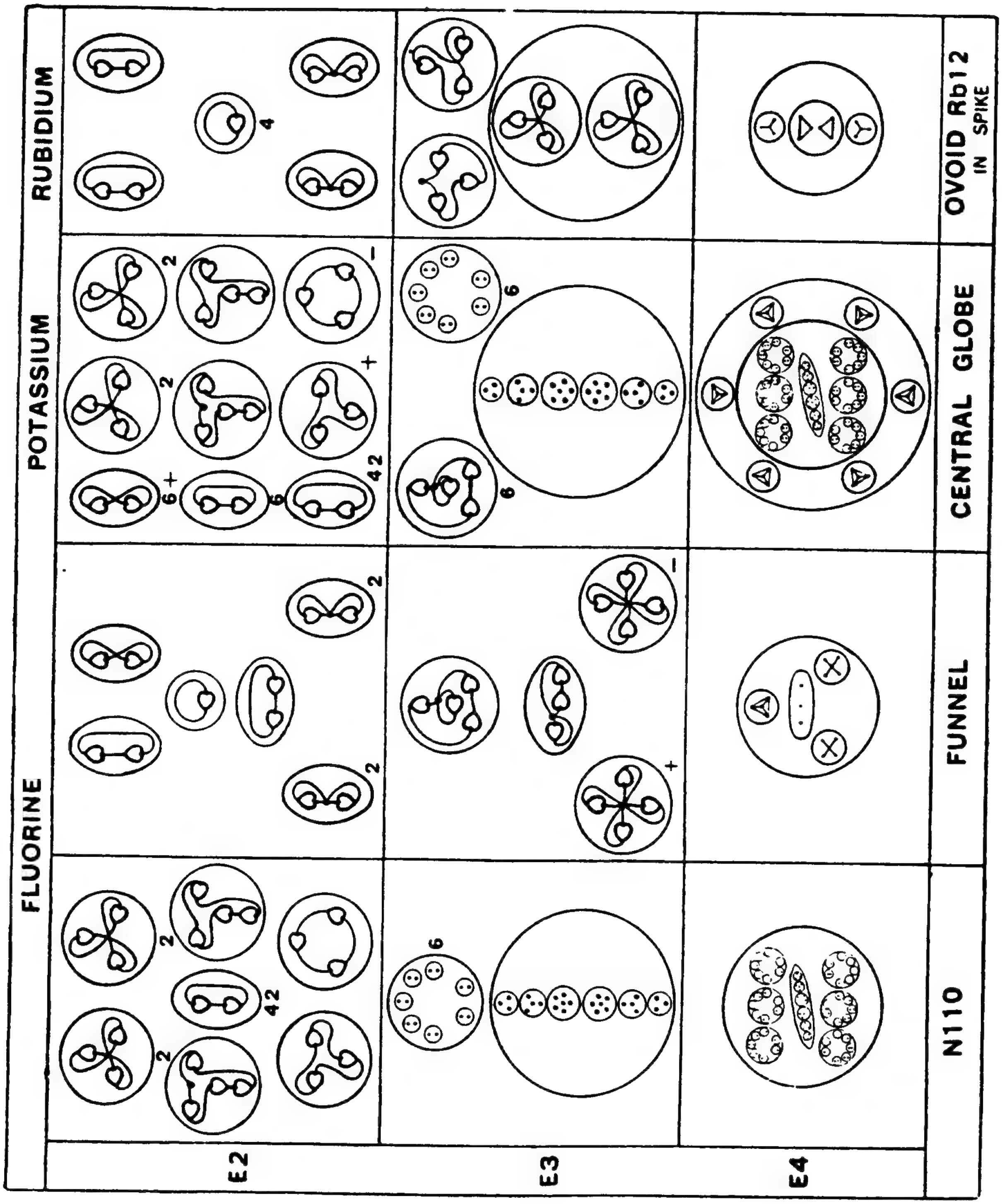


FIG. 28. DISINTEGRATION OF FLUORINE, POTASSIUM AND RUBIDIUM

DISINTEGRATION OF FLUORINE, POTASSIUM AND RUBIDIUM

FLUORINE

The main body of this element is formed by two N110 groups. Fig. 28.

On the E4 level they float off independently.

On the E3 level the central ellipse forms a sphere while the six spheres of seven duads, N14, are liberated.

On the E2 level the ellipse gives six triplets and two quartets and each N14 gives seven duads.

The funnels of Fluorine separate on the E4 level and are set free, becoming spheres.

On the E3 level the funnels set free their contained bodies, each funnel giving three quartets and a triad.

On the E2 level seven duads and a unit are formed.

POTASSIUM

On the E4 level one globe and nine spikes are liberated.

The globe. The central part of the globe is the N110 group. Fig. 28.

On the E4 level this forms a sphere surrounded by the six little tetrahedrons, 6Li4.

On the E3 level the N110 disintegrates into a sphere and six N14, as already described under Fluorine, while the Li4 tetrahedrons are liberated as quartets. Thirteen bodies are thus liberated on this level.

On the E2 level the quartets Li4 each give two duads while the N14 each give seven duads and the ellipse six triplets and two quartets. Half of these are positive and half negative.

The Spikes. The spikes Li63 are identical with those in Lithium and their behaviour is as shown under that element. Fig. 27.

RUBIDIUM

Rubidium gives sixteen spikes and three N110 on the E4 level.

The Globe. The central globe has three N110. Each of these is liberated on the E4 level and its disintegration proceeds as in the previous elements. Figs. 27, 28.

The Spikes. The spikes are more complicated than those of Lithium as they contain an extra ovoid Rb12. The Li63 group from the spike forms a sphere and behaves as in Lithium at all levels, as shown in Fig. 27. The ovoid Rb12 has a somewhat unusual form.

On the E4 level the triangles of the sextet revolve round each other.

On the E3 level the ovoid gives two triads and a sextet with two distinct triads.

On the E2 level the triads give duads and units.

Figure 29 shows in a condensed form all the elements of the spike group. The relationships and the way each atom is built up from a few constituents can be easily observed.

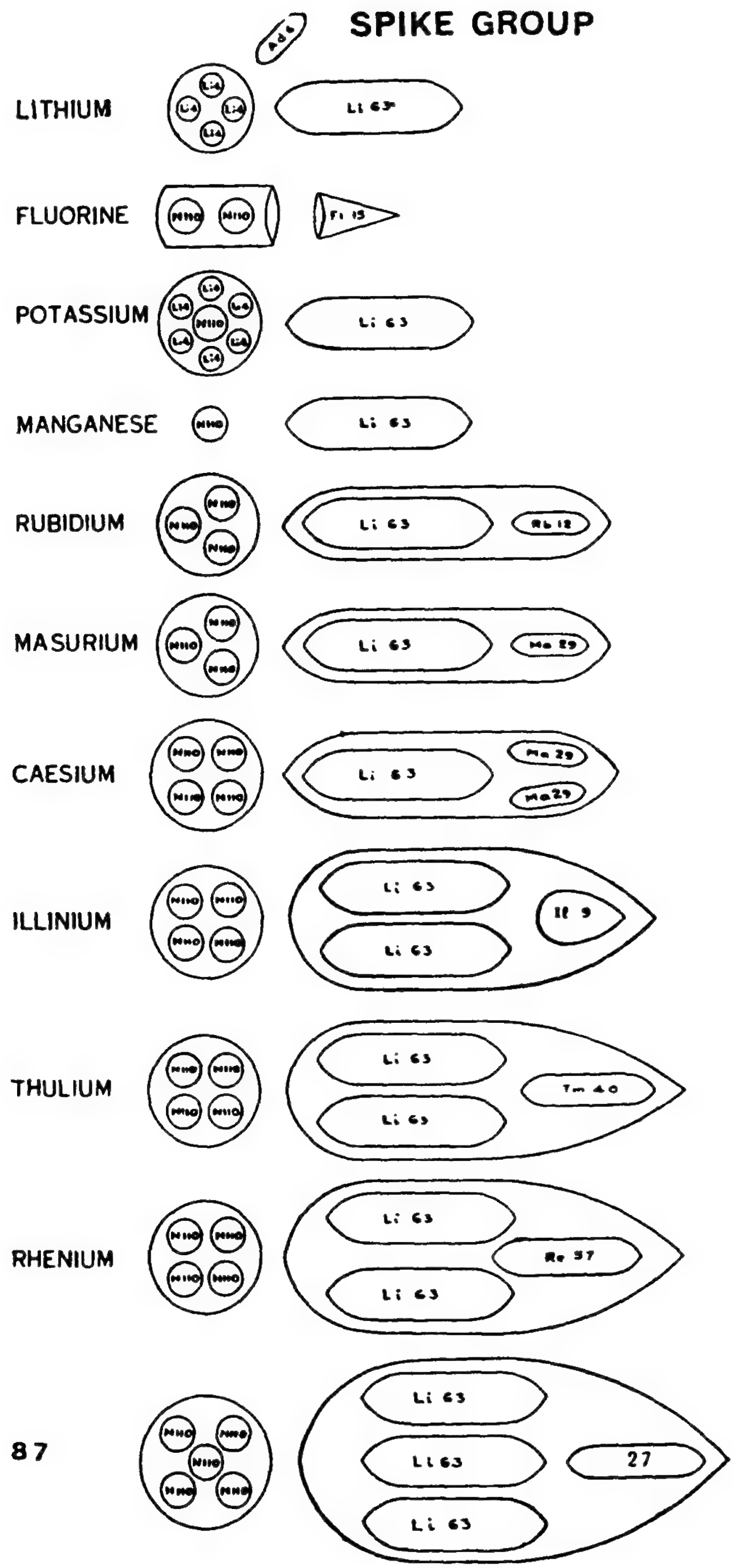

SPIKE GROUP
Ad6
LITHIUM
Li4
Li 63
FLUORINE
N110
Fl 15
POTASSIUM
Li 63
MANGANESE
Li 63
RUBIDIUM
Li 63
Rb 12
MASURIUM
Li 63
Ma 29
CAESIUM
Li 63
Ma 29
ILLINIUM
Li 63
Il 9
THULIUM
Li 63
Tm 40
RHENIUM
Li 63
Re 57
87
Li 63
27

FIG. 29

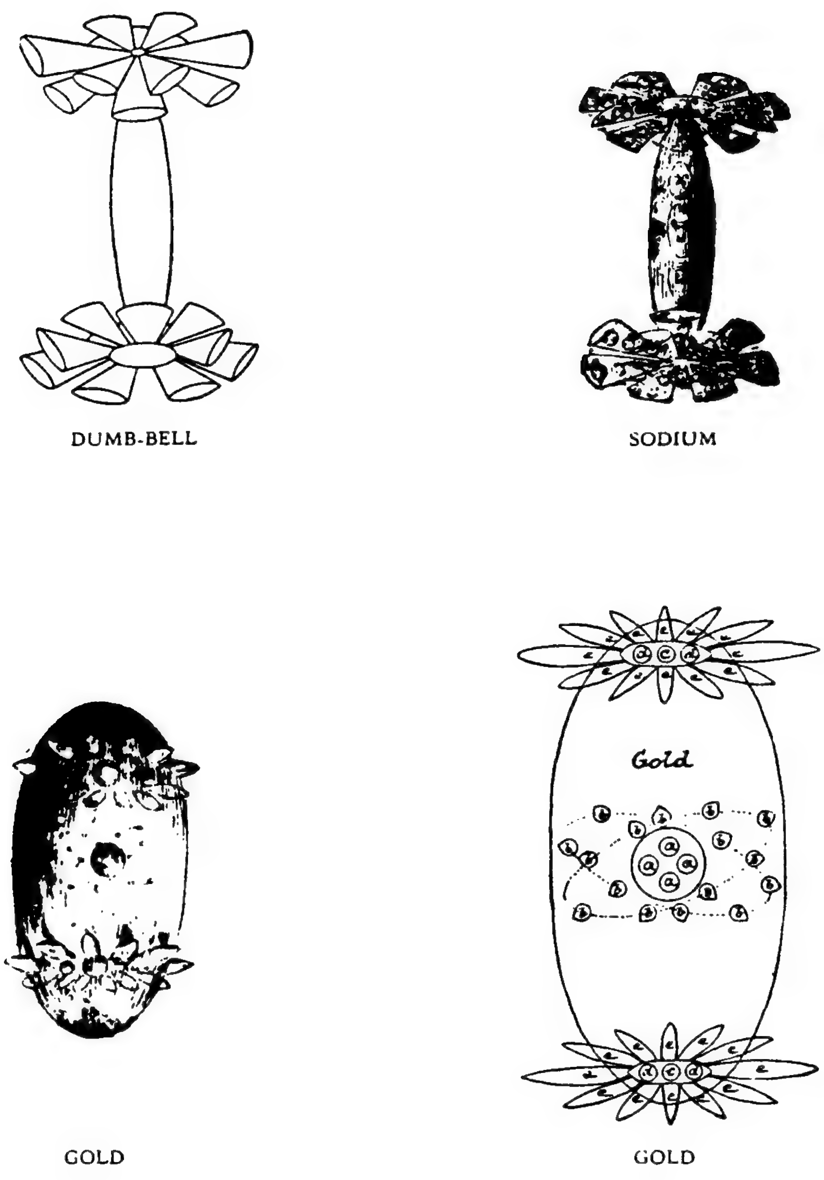


FIG. 30. TYPES OF THE DUMB-BELL GROUP

CHAPTER IV

THE DUMB-BELL GROUP

THE ten elements in this group are all of one type. What the type is will be seen from Fig. 30: the general shape was called a dumb-bell, as the best word to describe these elements. Each dumb-bell is composed of:

1. A connecting rod.

2. An upper part, or head, composed of twelve funnels revolving round a central globe. The twelve funnels, as they radiate outwards from the globe, point slightly upwards or downwards alternately.

3. An exactly similar lower part, composed of twelve funnels, radiating from a similar globe.

Each element is surrounded by a sphere wall.

These elements occur to the right of the central line in the pendulum diagram. Their characteristic valence is one.

In the diagrams we give the connecting rod, the globe and one funnel. It will be seen that here, as in the spike group, we find certain characteristic groups which are built into many of the elements.

The connecting rod in five elements is the same, and to this group we have given the distinguishing name of Cl.19. The rod in the last four elements steadily increases in size. The constituents of the Occultum atom appear frequently in Samarium, Erbium, Gold and 85. In the connecting rod, whenever there are two columns, as in Samarium they revolve perpendicularly round a common centre. When there are three columns, as in Erbium, they revolve round a centre which is the connecting rod Cl.19, the three columns being at the corners of a triangle. When there are four columns, as in 85, they revolve round a common centre, being at the corners of a square. The connecting rod of gold is exceptional as it does not contain columns.

The globes increase steadily in size as the weight increases. The analysis shows how these are built up.

The funnels also increase in size. One very important group, Cl.25, occurs in all the elements of this group from chlorine onwards.

One isotope, that of chlorine was observed.

THE DUMB-BELL GROUP

ATOMIC NO.	ANU	ELEMENT	ROD	GLOBES	FUNNELS
11	418	Sodium	Na14	2Na10	24 (Na16)
17	639	Chlorine	Cl.19	2Na10	24 (Na16+N9) = 24 Cl.25
29	1,139	Copper	Cl.19	2 (2Be4+2Ad6)	24 (Cl.25+2B5+Cu10)
35	1,439	Bromine	Cl.19	2 (Be4+2H3+2N2)	24 (Cl.25+3Ge11)
47	1,945	Silver	Cl.19	2 (m-Ne5+2H3+2N2)	24 (Cl.25+3 Ge11+Ag21)
53	2,287	Iodine	Cl.19	2 (3Be4+2H3)	24 (Cl.25+3 Ge11+5.I.7)
62	2,794	Samarium	(2Sm84+4Sm66)	2Sm101	24 (Cl.25+4 Ge11+Ag21)
68	3,029	Erbium	(Cl.19+3Sm84+6Sm66)	2Sm101	24 (Cl.25+4 Ge11+Ag21)
79	3,546	Gold	(4Sm84+16Au33 = Au864)	2 (Sm101+2Au38)	24 (Cl.25+4Ge11+Fe28)
85	3,978	85	Au864	2 (Sm101+2Au38)	24 (Cl.25+2+4.85.15+Fe28)

ATOMIC NO. 11.

SODIUM

Sodium is the simplest of the Dumb-bell group. It consists of a central rod, the bar of the dumb-bell, at each end of which is a globe from which radiate twelve funnels.

Rod. The rod consists of fourteen Anu arranged in three spheres of four, six and four Anu respectively.

Globe. The globe from which the funnels radiate consists of two concentric spheres. In the inner one are four Anu, while six Anu are found in the outer circle.

Funnel. Each funnel shows four enclosed bodies, chiefly made up of duads, as shown in Fig. 31.

Sodium = Na14 + 2 Na10 + 24 Na16.

Connecting rod	=	14	Anu
Upper part, 12 funnels of 16 Anu	=	192	"
Central globe	=	10	"
Lower part, 12 funnels of 16 Anu	=	192	"
Central globe	=	10	"
Total	=	418	Anu

Number weight $\frac{418}{18} = 23.22$

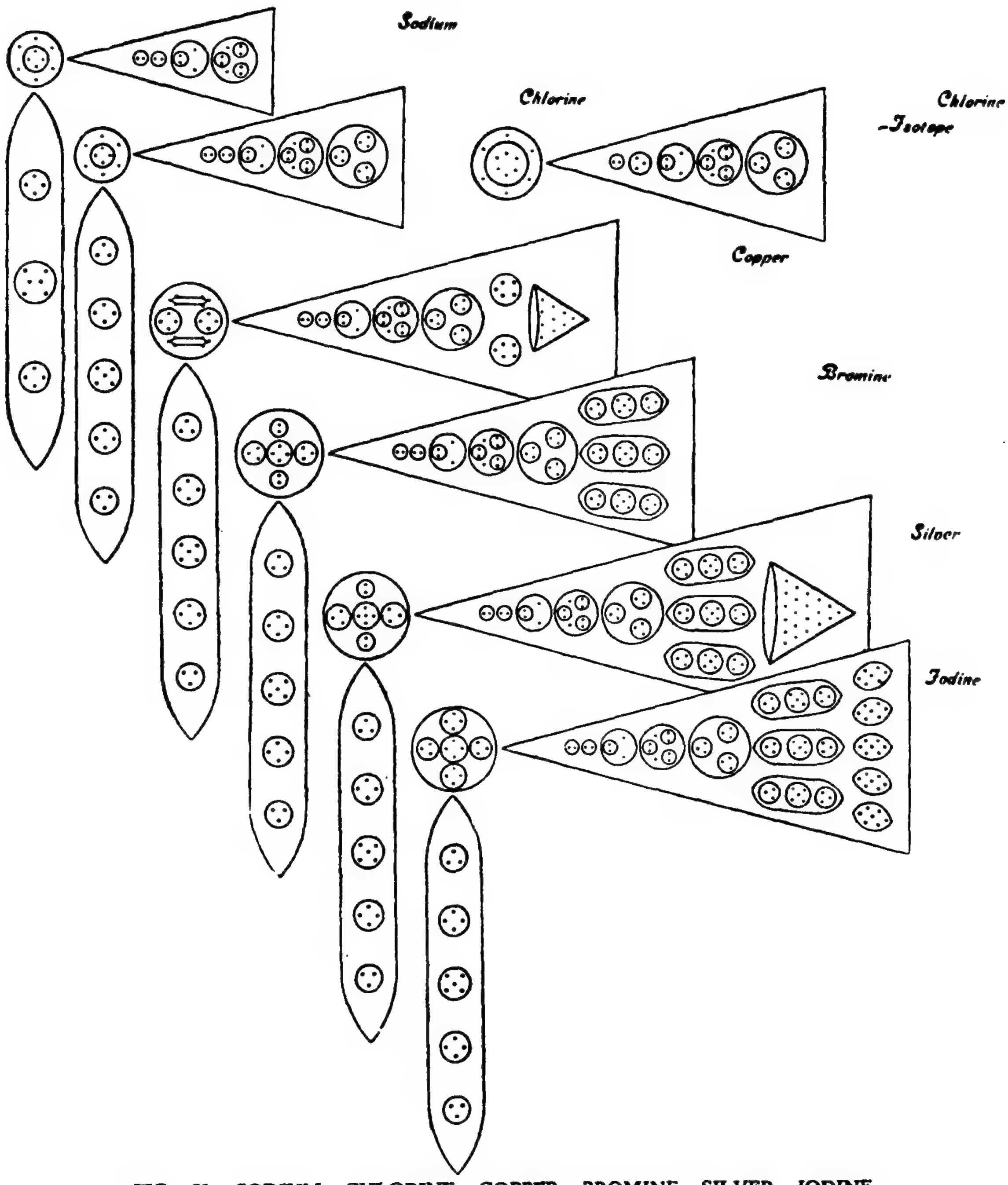


FIG. 31. SODIUM, CHLORINE, COPPER, BROMINE, SILVER, IODINE

ATOMIC NO. 17

CHLORINE

Chlorine contains some of the fundamental patterns used in this group. Fig. 31.

Rod. In the rod we find an arrangement of five small spheres, containing three, four, five, four and three Anu respectively. This makes up the characteristic group Cl.19 which occurs again in a number of elements in the group.

Globe. The globes are the same as those in Sodium.

Funnel. The funnel, shown flat as an isosceles triangle, is a somewhat complicated structure, of the same type as that in Sodium, the difference consisting in the addition of one more sphere containing nine Anu. The whole funnel forms the characteristic group Cl.25, which occurs in all the succeeding elements in the group.

These close similarities point to some real relation between these elements.

Chlorine = Cl.19 + 2Na10 + 24Cl.25.

Connecting rod	=	19	Anu
Upper part, 12 funnels of 25 Anu	=	300	"
Central globe	=	10	"
Lower part, 12 funnels of 25 Anu	=	300	"
Central globe	=	10	"
Total	=	639	Anu

$$\text{Number weight } \frac{639}{18} = 35.50$$

ISOTOPE OF CHLORINE

This was specially looked for in sea water and found. The difference consists in the addition of one Anu to each of the 24 funnels, and of two Anu to each of the two globes round which the funnels revolve. A funnel of Chlorine consists of five spheres containing respectively 2, 2, 4, 8, and 9 Anu. In the isotope, the arrangement is 2, 3, 4, 8, and 9. Each central globe of Chlorine contains ten Anu, an inner sphere of four Anu surrounded by an outer of six. In the isotope the central globe contains twelve Anu, an inner sphere of six Anu at the points of an octohedron, and an outer sphere of six. Fig. 31.

The isotope is less common than the normal variety of Chlorine. Though a thorough investigation was not made of the difference between Chlorine and its isotope, nevertheless the impression gained was that the isotope was more positive than Chlorine.

Chlorine *a* = Cl.19 + 2 (Na10 + 2) + 24 Cl.26

Connecting rod	=	19	Anu
Upper part, 12 funnels of 26 Anu	=	312	"
Central globe	=	12	"
Lower part, 12 funnels of 26 Anu	=	312	"
Central globe	=	12	"
Total	=	667	Anu

$$\text{Number weight } \frac{667}{18} = 37.06$$

ATOMIC NO. 29.

COPPER

Rod. The connecting rod in Copper is exactly the same as that in Chlorine, Cl.19.

Globe. The central globe contains two spheres of four Anu and a prism-shaped group containing six Anu. This is the Ad6 group, which is one of the most common of the constituent groups.

Funnel. The main portion of the funnel is that ~~of~~ Chlorine, Cl.25. The funnel also contains additional bodies, notably a triangular cone containing ten Anu. Such a cone, built of varying numbers of ~~Anu~~, occurs in other elements, such as Gold, Iron and Platinum. There are also two quintets, 2B5. Fig. 31.

Copper = Cl.19 + 2 (2Be4 + 2Ad6) + 24 (Cl.25 + 2B5 + Cu10)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 45 Anu	=	540	,,
Central globe	=	20	,,
Lower part, 12 funnels of 45 Anu	=	540	,,
Central globe	=	20	,,
Total	=	1139	Anu

$$\text{Number weight } \frac{1139}{18} = 63.28$$

ATOMIC NO. 35

BROMINE

Rod. In Bromine the connecting rod remains unchanged, Cl.19.

Globe. The globe seems to be formed from that of Chlorine. Two pairs of Anu are added and a rearrangement is effected by drawing together and lessening the swing of the pairs of triplets, thus making room for the newcomers.

Funnel. Each funnel consists of the Cl.25 and three additional groups, Ge11, ovoid in shape, and each containing eleven Anu. Thus thirty-three Anu are added without any disturbance of form. The total number of Anu is here raised to 1,439. Fig. 31.

Over and over again, in these investigations, were we reminded of Tyndall's fascinating description of crystal building, and his fancy of the tiny, ingenious builders busied therein. Truly are there such builders, and the ingenuity and effectiveness of their devices are delightful to see. Theosophists call them Nature-spirits, and often use the mediaeval term elementals. Beings concerned with the elements truly are they, even with chemical elements.

Bromine = Cl.19 + 2 (Be4 + 2H3 + 2N2) + 24(Cl.25 + 3Ge11)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 58 Anu	=	696	,,
Central globe	=	14	,,
Lower part, 12 funnels of 58 Anu	=	696	,,
Central globe	=	14	,,
Total	=	1439	Anu

$$\text{Number weight } \frac{1439}{18} = 79.94$$

ATOMIC NO 47.

SILVER

Rod. The connecting rod in Silver is the Cl.19.

Globe. The globe is similar to that in Bromine, except that the small central sphere has five Anu instead of four.

Funnel. The funnel contains the Cl.25 and the three Ge11, as in Bromine, but it adds a triangular group of 21 Anu. In this it resembles copper and other metals. Fig. 31.

Silver = Cl.19 + 2 (m-Ne5 + 2H3 + 2N2) + 24 (Cl.25 + 3 Ge11 + Ag21)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 79 Anu	=	948	"
Central globe	=	15	"
Lower part, 12 funnels of 79 Anu	=	948	"
Central globe	=	15	"
Total	=	1945	Anu

Number weight $\frac{1945}{18} = 108.06$

ATOMIC NO. 53.

IODINE

Rod. The connecting rod is the Cl.19.

Globe. The central globe contains three quartets and two triplets.

Funnel. The funnel contains the Cl.25 and three Ge11, as in Bromine, and adds five ovoids, I.7, each containing seven Anu. Fig. 31.

Iodine = Cl.19 + 2 (3Be4 + 2H3) + 24 (Cl.25 + 3Ge11 + 5 I.7)

Connecting rod	=	19	Anu
Upper part, 12 funnels of 93 Anu	=	1116	"
Central globe	=	18	"
Lower part, 12 funnels of 93 Anu	=	1116	"
Central globe	=	18	"
Total	=	2287	Anu

Number weight $\frac{2287}{18} = 127.06$

ATOMIC NO. 62

SAMARIUM

This element seems to be an intermediate stage between Silver and Gold. Fig. 32.

Rod. The connecting rod is yet in embryo, for it has not the wonderful solar system which makes so splendid an appearance in Gold. It has evolved already the curious form, Sm84, with its four rope-like rings, Oc. 15., borrowed from Occultum. Two of these Sm84 groups appear in Samarium and four in Gold. The Au33 groups, also derived from Occultum, which rotate round the central sphere in the rod of Gold, appear in this element but are curiously doubled.

The rod contains, in all, six bodies, forming two columns which revolve round a common centre. The rod will be found on close examination to be constructed from the constituents of eight atoms of Occultum.

Globe. The globes at the top and bottom of the dumb-bell have now become a complex body which may be distinguished as Sm101. Each globe consists of a central small sphere of five Anu, surrounded by a ring of six duads. These are again surrounded by a ring of twelve L7 groups.

Funnel. The funnels are identical with those of Silver, except that the Cl.25 is slightly rearranged and there are four Ge11 instead of three. It contains the triangular-shaped body containing 21Anu, Ag21.

There is some reason to believe that this element is the Aurichalcum of the Atlanteans, as described by Plato. If so, it probably exists in much greater quantity than is yet known.

Samarium is considered to be one of the Rare Earths and chemists are undecided how best to assign places in the Periodic Table to these elements. It will be seen that the arrangement suggested in this book, and confirmed by the sequence of characteristic shapes, gives a scheme whereby all these elements fall naturally into the groups.

Samarium = (2Sm84 + 4Sm66) + 2Sm101 + 24 (Cl.25 + 4Ge11 + Ag21)

Connecting rod	=	432	Anu
Upper part, 12 funnels of 90 Anu	=	1080	"
Central globe	=	101	"
Lower part, 12 funnels of 90 Anu	=	1080	"
Central globe	=	101	"
Total	=	2794	Anu

$$\text{Number weight } \frac{2794}{18} = 155.22$$

ATOMIC NO. 68.

ERBIUM

Rod. The connecting rod follows the pattern of Samarium, but it contains three columns instead of two and these columns contain the constituents of twelve Occultum atoms. In addition there is the group Cl.19 which appears as the connecting rod in the earlier elements. The three columns are placed at the corners of a triangle and revolve round the Cl.19.

Globe. The globe is the Sm101 group which forms the globe of Samarium.

Funnel. The funnels are identical with those of Samarium. Fig. 32.

Erbium = (Cl.19 + 3Sm84 + 6Sm66) + 2Sm101 + 24 (Cl.25 + 4 Ge11 + Ag21)

Connecting rod	=	667	Anu
Upper part, 12 funnels of 90 Anu	=	1080	,,
Central globe	=	101	,,
Lower part, 12 funnels of 90 Anu	=	1080	,,
Central globe	=	101	,,
Total	=	3029	Anu

Number weight $\frac{3029}{18} = 168.27$

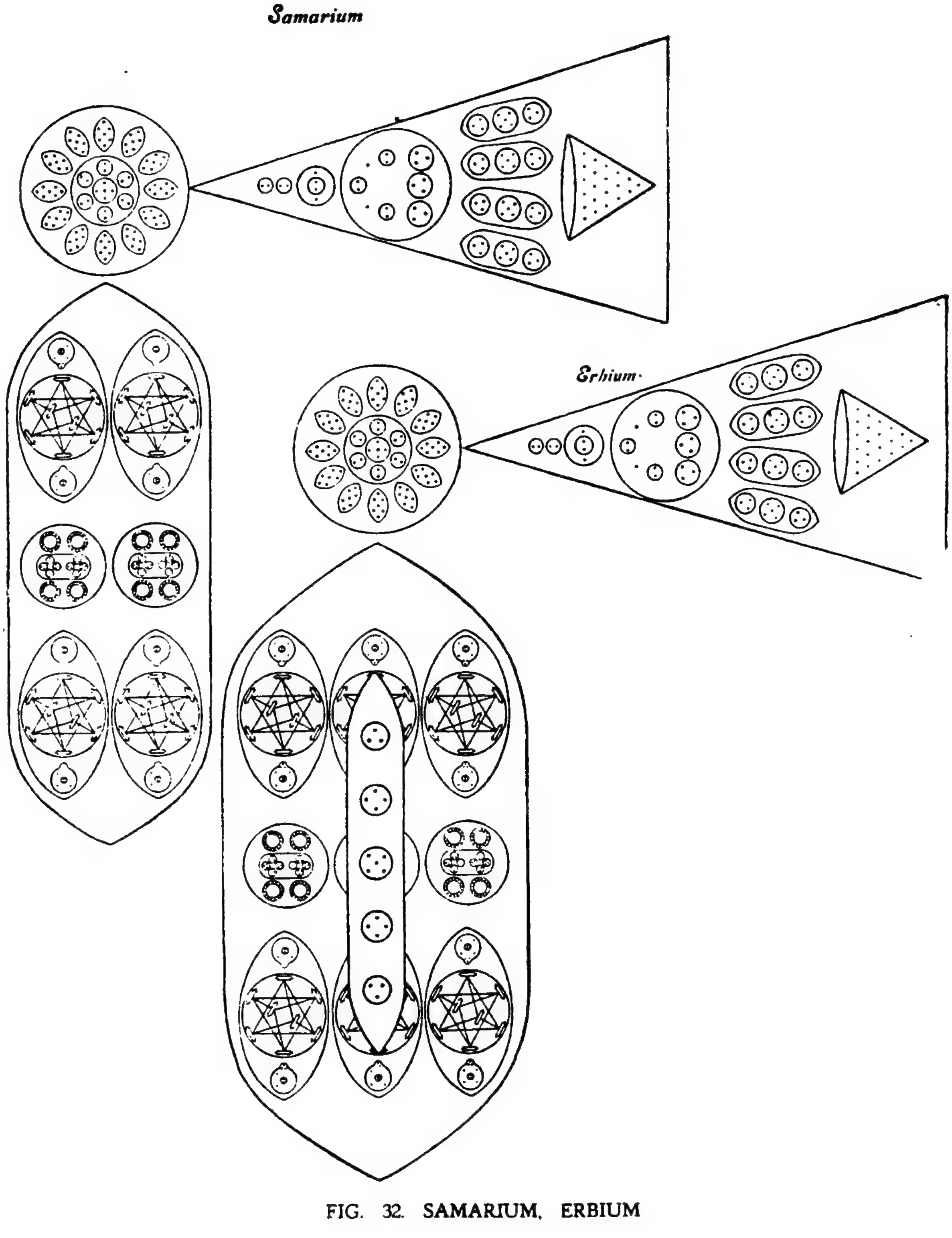


FIG. 32. SAMARIUM, ERBIUM

ATOMIC NO. 79

GOLD

Gold is so complicated that it is difficult to recognise the familiar dumb-bell in this elongated egg, but when we come to examine it the characteristic groupings appear. The egg is the enormously swollen connecting rod, and the upper and lower funnels with their central globes are the almond-like projections radiating from an ovoid. Round each almond is a shadowy funnel (not drawn in the diagram) and within the almond is the collection of bodies shown in the diagram of the funnel. Figs. 30 and 33.

Rod. The rod contains four groups, Sm84, in the centre, and sixteen Au33 groups circling round them. These sixteen groups are arranged in two planes inclined to one another. The whole rod is made from the constituents of sixteen atoms of Occultum.

Globe. The central globe here becomes an ovoid and is made up of one sphere, as in Samarium, Sm101, and two new spheres, Au38.

Funnel. The funnels are exactly like those of Samarium and Erbium except that the triangular body has twenty-eight Anu, as in Iron.

Gold = (4Sm84 + 16Au33) + 2 (Sm101 + 2Au38) + 24 (Cl25 + 4Ge11 + Fe28).

Connecting rod	=	864	Anu
Upper part, 12 funnels of 97 Anu	=	1164	,,
Central globe	=	177	,,
Lower part, 12 funnels of 97 Anu	=	1164	,,
Central globe	=	177	,,
Total	=	3546	Anu

Number weight $\frac{3546}{18} = 197.00$

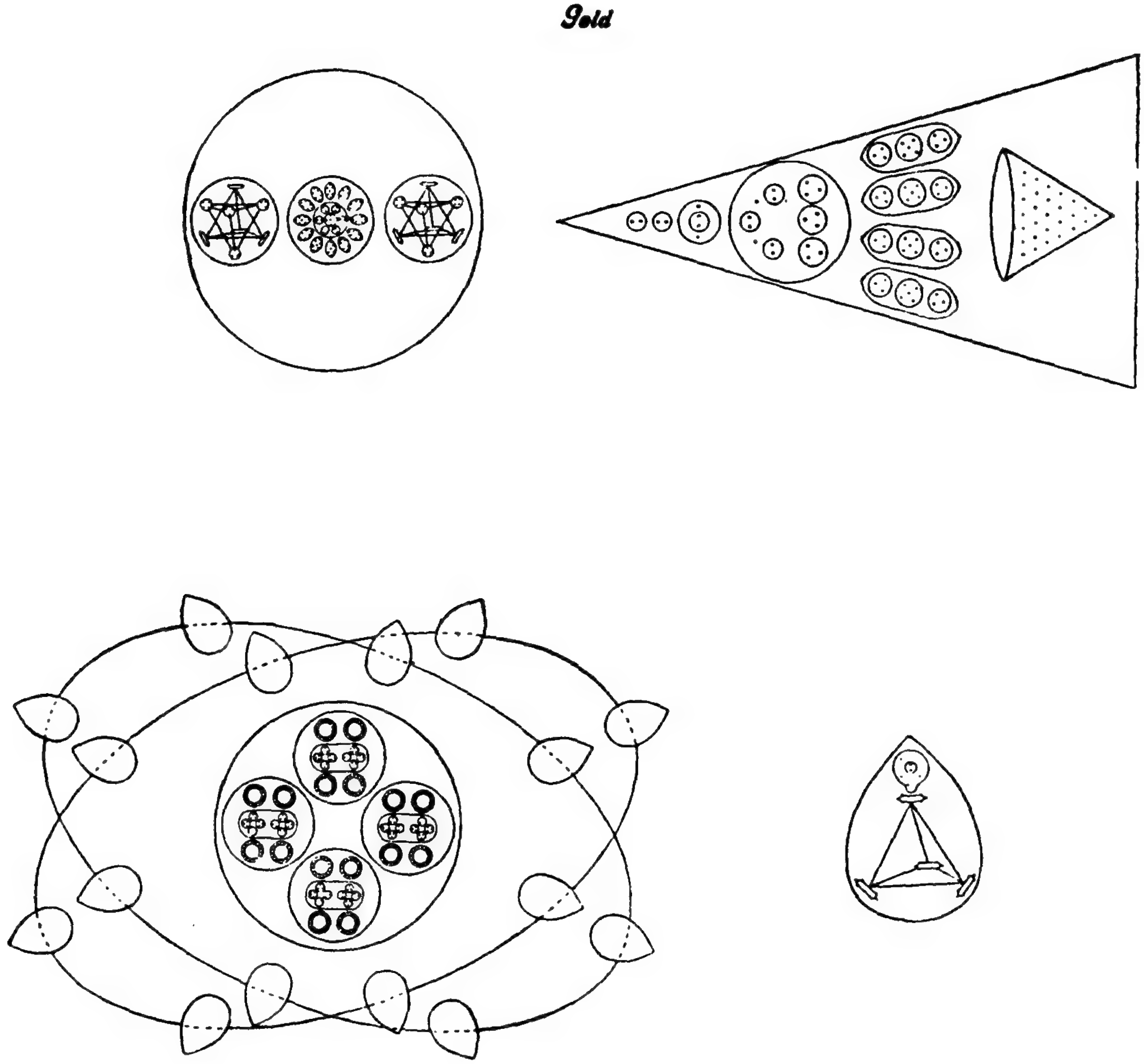


FIG. 33. GOLD

ATOMIC NO. 85.

85

This element follows the pattern of Samarium and Erbium. Figs. 32 and 34.

Rod. The rod is very large and, like that of gold, contains the constituents of sixteen Occultum atoms. In No. 85, however, these groups are arranged in columns as in Samarium, though here we have four columns instead of two. The four columns are arranged at the corners of a square and rotate round a centre.

Globe. The globe is as in gold and contains one Sm101 and two Au38 spheres.

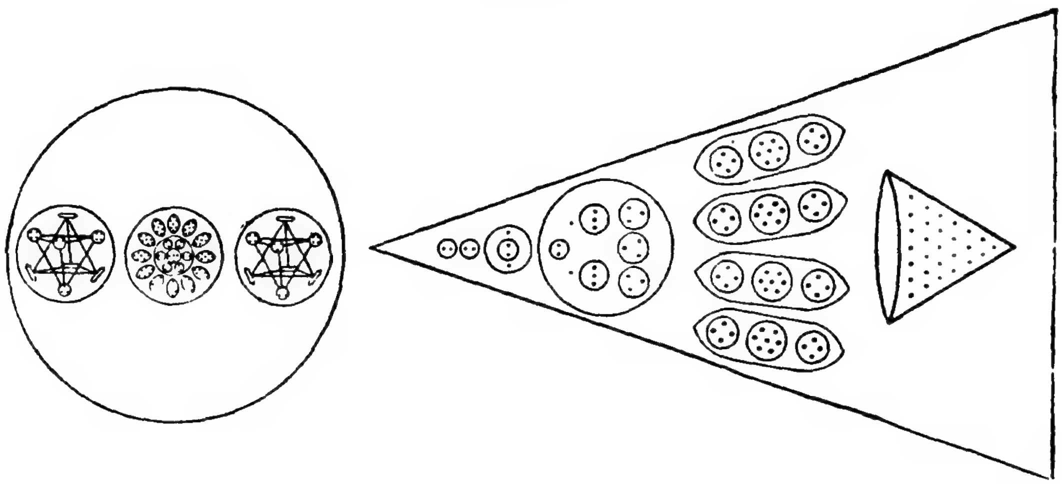
Funnel. The funnel is like that of Gold but there are 18 extra Anu packed in. This is done, first by adding two Anu to the Cl25 unit, two of the upper duads becoming triplets. Then instead of the four Ge11 groups we have four groups made up of two spheres of four Anu and one sphere of seven Anu. So we have four groups of fifteen Anu instead of four of eleven. The Fe28 cone comes at the mouth of the funnel.

85 = Au864 + 2 (Sm101 + 2 Au38) + 24 (Cl. 25+2 + 4. 85. 15 + Fe28)

Connecting rod	=	864	Anu
Upper part, 12 funnels of 115 Anu	=	1380	„
Central globe	=	177	„
Lower part, 12 funnels of 115 Anu	=	1380	„
Central globe	=	177	„
Total	=	3978	Anu

Number weight $\frac{3978}{18} = 221.00$

NO. 85.



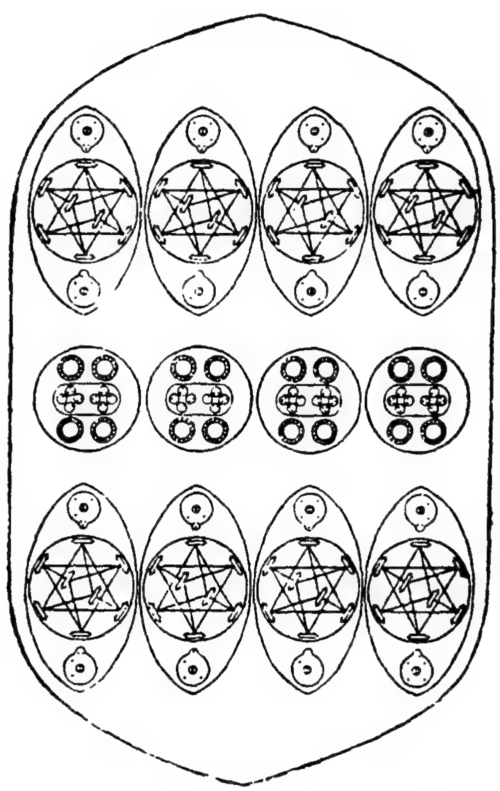


FIG. 34. NO. 85

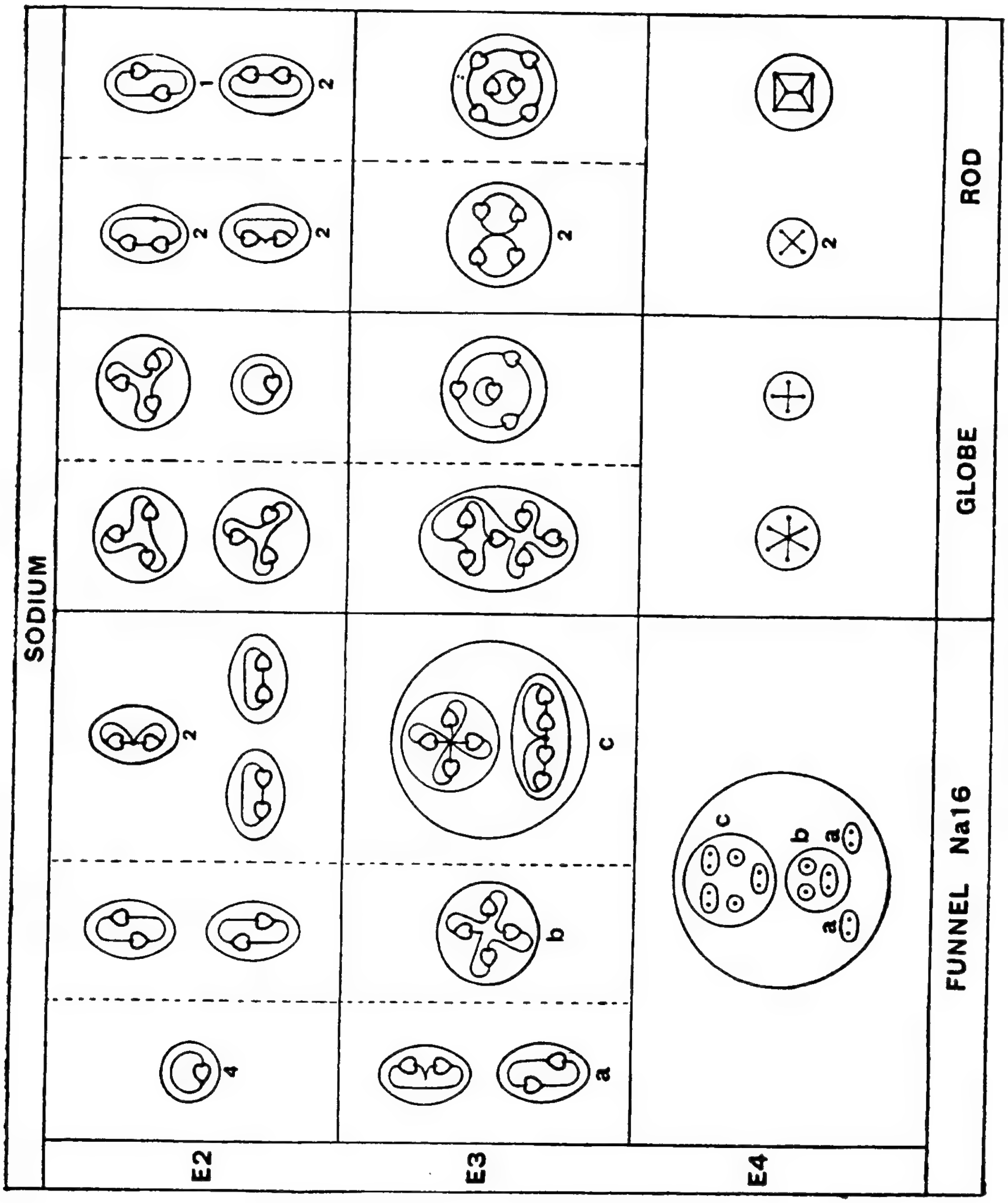


FIG. 35. DISINTEGRATION OF SODIUM

DISINTEGRATION OF THE DUMB-BELL GROUP

SODIUM

Sodium gives the basic pattern of disintegration for the whole group. Fig. 35. When Sodium is set free from its gaseous condition it divides up into 31 bodies; twenty-four separate funnels, four bodies derived from the two globes and three from the connecting rod, each with more or less complex contents.

Funnels. On the E4 level each funnel becomes a sphere containing four bodies, 2*a*, 1*b* and 1*c*.

On the E3 level the two duads *a* become entirely independent and on the E2 level the four Anu break off from each other and gyrate in independent solitude.

The contents of the *b* group unite into a quartet which, on the E2 level, yields two duads.

The contents of the group *c* are re-arranged on the E3 level, giving two groups of four within a common sphere. On the E2 level the sphere yields four duads.

Globes. Each globe yields a sextet and a quartet on the E4 level. On the E3 level the sextet, with its six Anu whirling round a common centre, becomes grouped into two triplets, preparing for the complete separation of these on the E2 level.

The quartet, a whirling cross with an Anu at each point, becomes a quartet on the E3 level, in which three Anu revolve round a fourth. In the E2 state the central Anu is set free, resulting in a triplet and a unit.

Rod. On the E4 level the rod sets free two quartets and a peculiarly formed sextet. Each of the quartets liberated from the Rod shows four Anu whirling round a common centre, exactly resembling in appearance the quartet from the globe. But there must be some difference of inner relation for, in the E3 state, they act differently. Those from the Rod re-arrange themselves as two pairs and divide into two duads on the E2 level.

The sextet is a four-sided pyramid with two closely joined Anu at its apex. These still cling to each other in mutual revolution as an E3 body, encircled by a ring of four. On further disintegration to the E2 level this leads to three duads.

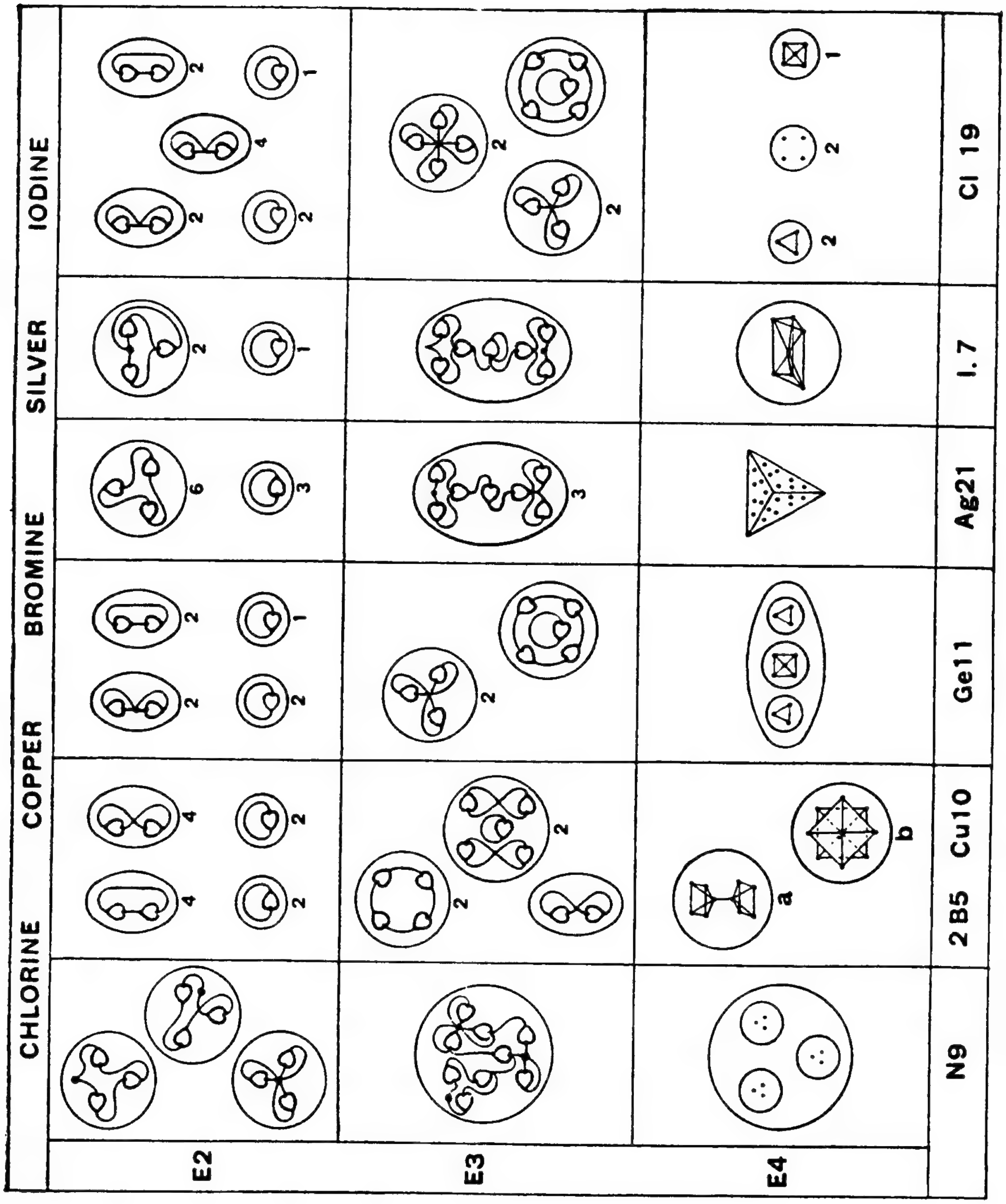


FIG. 36. DISINTEGRATION OF FUNNELS OF COPPER, BROMINE, SILVER, IODINE

DISINTEGRATION OF CHLORINE

Funnels. On the E4 level the 24 funnels, Cl.25, form spheres as do those of Sodium. The small additional sphere, N9, containing three groups of three Anu, remains within this funnel-sphere. Figs. 35 and 36.

Globes. The globes are identical with those of Sodium and disintegrate in the same way. Fig. 35.

Rod. The connecting rod, Cl.19, is common to a number of elements. Fig. 36. On the E4 level it sets free 5 bodies, two triplets, two tetrads and a quintet, the latter in the form of a four-sided pyramid. On the E3 level we find the two triplets and the two quartets. The quintet has become a ring of 4 Anu whirling round a central unit. On the E2 level these further disintegrate yielding 8 duads and 3 units.

DISINTEGRATION OF COPPER

Funnels. Each funnel in Copper contains a lower part which is identical with the funnel of Chlorine, Cl.25. This lower part disintegrates as shown in Figs. 35 and 36. The upper part of the funnel provides us with new types, the two spheres of ten Anu. The Anu in these spheres are curiously arranged. One sphere, *a*, consists of two square-based pyramids, 2B5, turned so as to meet at their apices. It breaks up into two quartet-rings and a duad on the E3 level. On the E2 level it forms 4 duads and 2 units. The sphere, *b*, also contains two four-sided pyramids but their bases are in contact and set at right angles to each other; the second apex is not seen in the diagram as it is directly below the first. The pyramids separate as E3 bodies and the Anu assume the peculiar arrangement indicated. On the E2 level, they break up into four pairs and two units.

Globe. Fig. 37. Each globe contains two spheres of 4 Anu and two Ad6 groups. The globe is set free on the E4 level but does not break up. On the E3 level it forms two quartets and two sextets.

On the E2 level we find 8 smaller bodies, four triads and 4 duads.

Rod. Cl.19 disintegrates as in Chlorine. Fig. 36.

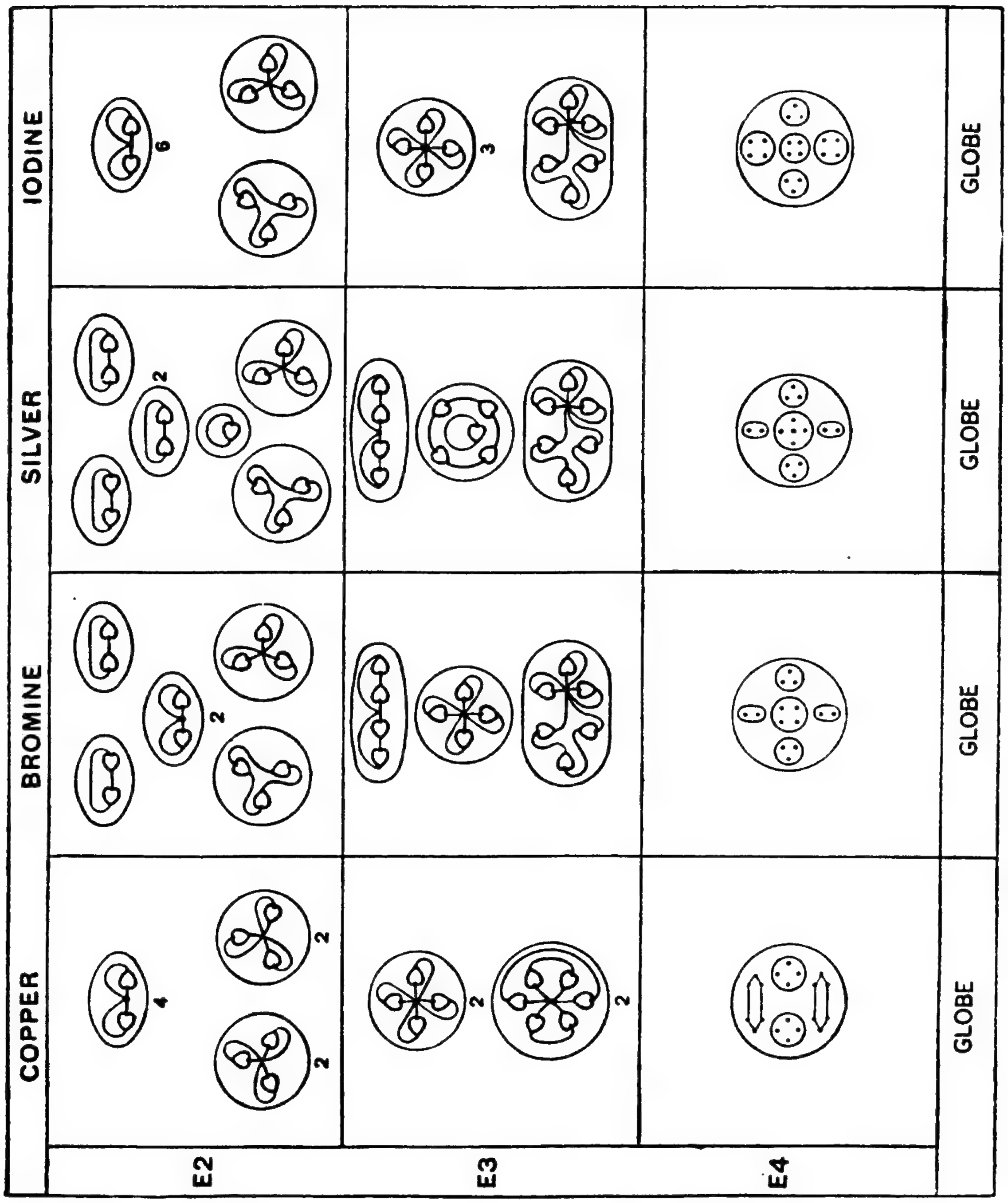


FIG. 37. DISINTEGRATION OF GLOBES OF COPPER, BROMINE SILVER, IODINE

DISINTEGRATION OF BROMINE

Funnels. The funnels of Bromine act similarly to those of Chlorine. Fig. 36. There are, however, three extra ovoids, Ge11, each containing two triplets and a quintet. This ovoid, which is shown in Fig. 36, gives, on the E3 level, two triplets and a ring of four Anu with another in the centre. On the E2 level we find four duads and two units.

Globes. The globes are set free on the E4 level. Fig. 37. The quartets and the two triplets whirl in a plane vertical to the paper and the two duads on a plane at right angles to this.

On the E3 level the two duads together form a linear quartet. The central quartet gives a whirling cross and the two triplets a single sextet.

On the E2 level these dissociate into four duads and two triplets.

Rod. Cl.19 disintegrates as does that of Chlorine. Fig. 36.

DISINTEGRATION OF SILVER

Funnels. The funnels of Silver are very similar to those of Bromine. On the E4 level we find the sphere-funnel of Chlorine. Figs. 36 and 37. Then we come to the three ovoids, Ge11, each containing two triplets and a quintet. Their disintegrations are shown under Bromine. Fig. 36. Finally we find the triangular-shaped body, Ag21, at the apex of the funnel. On the E4 level this forms three triangles joined at their apices, in fact a tetrahedron in which no Anu are distributed on the fourth face. On the E3 level these three faces separate and give three septets. On the E2 level each of the septets gives two triplets and a unit.

Globes. These are set free at the E4 level. Fig. 37. Each contains two triplets and two duads revolving round a central group of five. The pentad and the two triplets whirl in a plane vertical to the paper and the two duads in a plane at right angles to this. The pentad is a four-sided pyramid on a square base.

On disintegration to the E3 level they form a linear quartet, a sextet and a body of five Anu. On the E2 level they disintegrate as shown in Fig. 37, giving two triplets, four duads and a unit.

Rod. The rod behaves as in Chlorine.

DISINTEGRATION OF IODINE

Funnels. These funnels are like those of Bromine, with the addition of 5 ovoid bodies, 5.I.7, at the top of each. The disintegration of the funnels is shown in Figs. 36, 37. The lower part of the funnel acts as in Chlorine and the 3 ovoids, Ge11, as in Bromine. On the E4 level the ovoids, I.7, become spheres when the funnels are thrown off, and a crystalline form is indicated within the sphere. The Anu are arranged in two tetrahedrons with a common apex, and the relationship is maintained in the E3 body, a septet. This latter breaks up into two triplets and a unit on the E2 level. Fig. 36.

Globes. The globes resemble those of Bromine save that they each contain two quartets instead of two duads on the E4 level. These disintegrate as usual on the E3 level, giving three quartets and also one sextet as in Bromine. On the E2 level we get two triplets and six duads.

Rod. The rod is similar to that in Chlorine and dissociates in the same way.

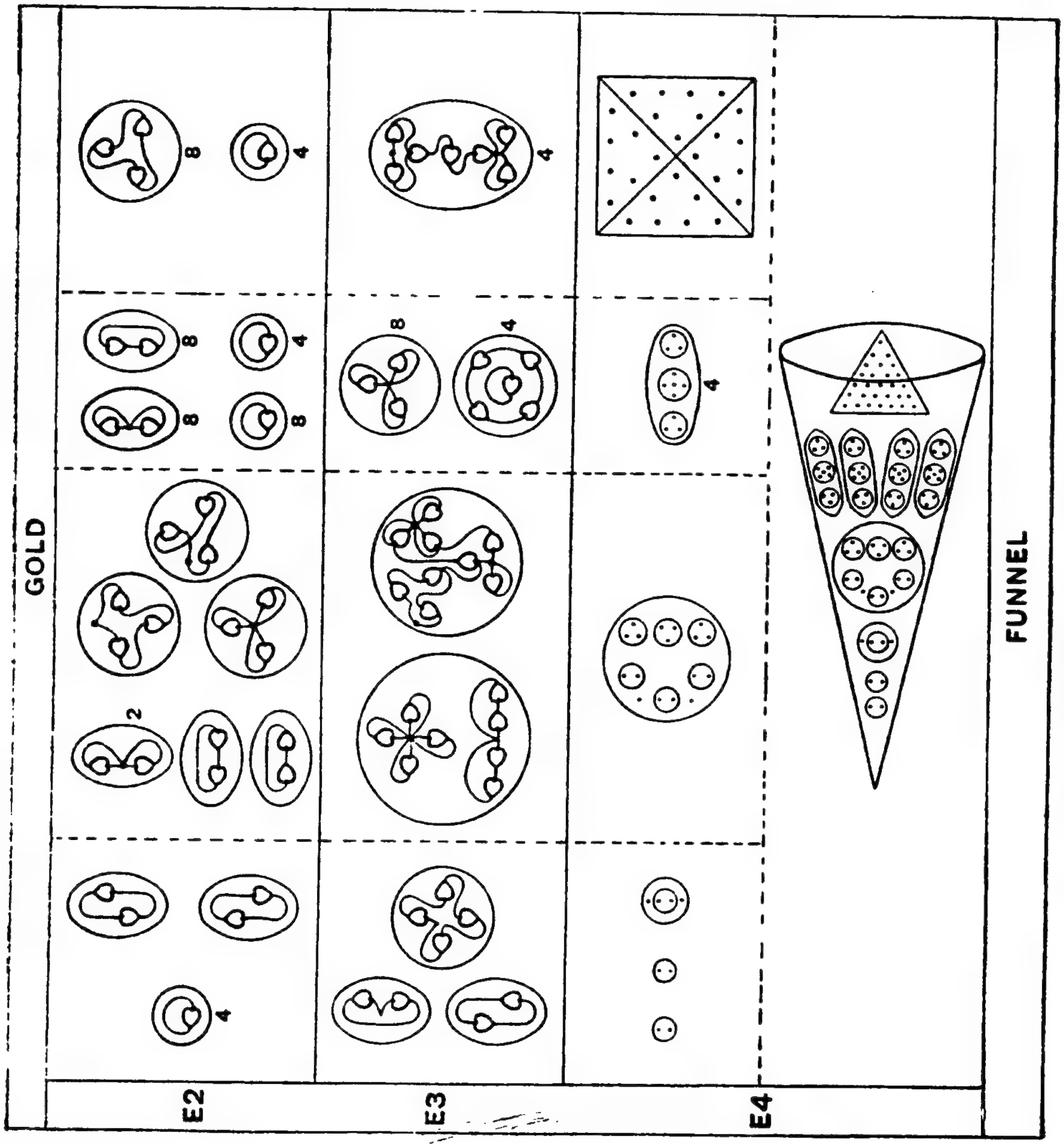


FIG. 38. DISINTEGRATION OF THE FUNNELS OF GOLD

DISINTEGRATION OF GOLD

Funnels. Fig. 38. On the E4 level the 24 funnels first separate as complete funnels, but this condition does not last. The motion of the funnels changes and they finally cease to exist, setting free their contents.

At stage two on the E4 level, therefore, we have each funnel liberating nine independent bodies. The whole arrangement is very similar to that of Silver, and we find here also a four-sided pyramid, but it contains 28 Anu instead of 21 and is similar to that in Iron.

On the E3 and E2 levels all these break up into the simple bodies with which we are already familiar in Chlorine, Bromine and Silver.

Globes. Fig. 39. The globes each contain three bodies, Sm101 and 2 Au38, and these are first liberated on the E4 level.

The Sm101 gives 13 bodies at the second stage of the E4 level.

The 12 septets form prisms as in Iodine and pursue the same course on the E3 and E2 levels. The central body, a four-sided pyramid with six attendants, remains as a single unit on the E4 level. On the E3 level we find these as six duads revolving round a ring of four with a central Anu; while on the E2 level these duads go off independently and the ring breaks up.

In the Au38 the tetrahedron, Ad24, follows its course as shown, breaking up into positive and negative groups of six at the E3 level and into triplets at the E2 level.

The other tetrahedron in Au38 sets free two quartets and two triplets on the E3 level, yielding six duads and two units as E2 compounds.

Rod. Fig. 40. At the first stage the 16 bodies, Au33, on the central inclined planes break away, the central globe with its four contained globes, Sm84, remaining unchanged. This is not permanent however.

At the second stage of E4 the sixteen Au33 separate into two groups and disintegrate on the E3 level as in Adyarum and Occultum. The cigars, Ad6, form four sextets, two negative and two positive. On the E2 level they give 8 triplets.

The balloon, Oc9, gives on E4 a body with re-arranged Anu and on the E3 level two triplets, a duad and a single Anu. On the E2 level we find five single Anu and two duads.

The sphere, Sm84, forms four rings of 15 Anu at the second stage of E4, and an ovoid containing 24 Anu.

On the E3 level each ring forms two bodies of 7 and 8 Anu respectively. On the E2 level these form a quintet, two quartets, and a duad.

The central ovoid with its two contained bodies breaks up into eight triangles on the E3 level and each of these on the E2 level into a duad and a unit.

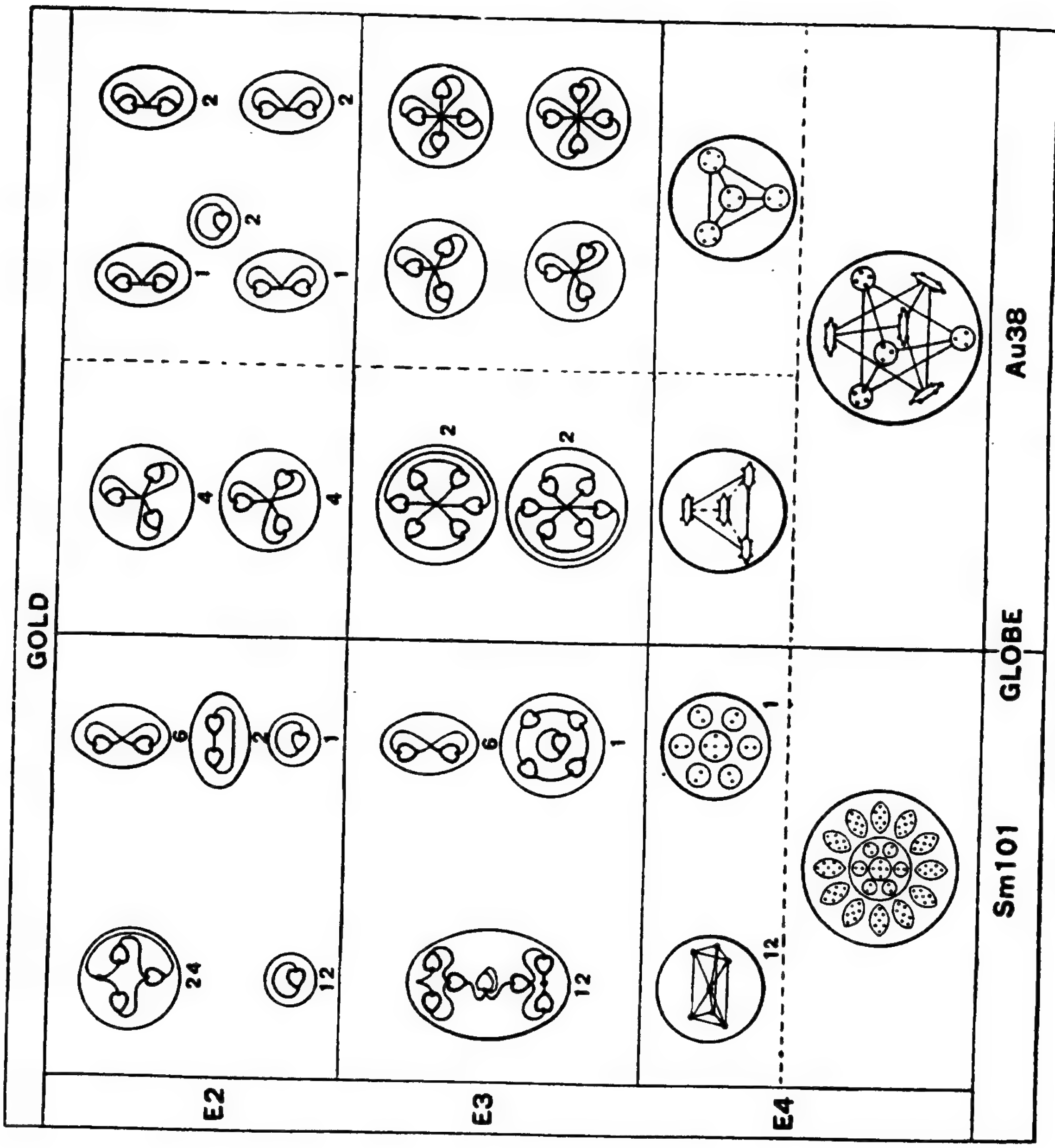


FIG. 39. DISINTEGRATION OF THE GLOBES OF GOLD

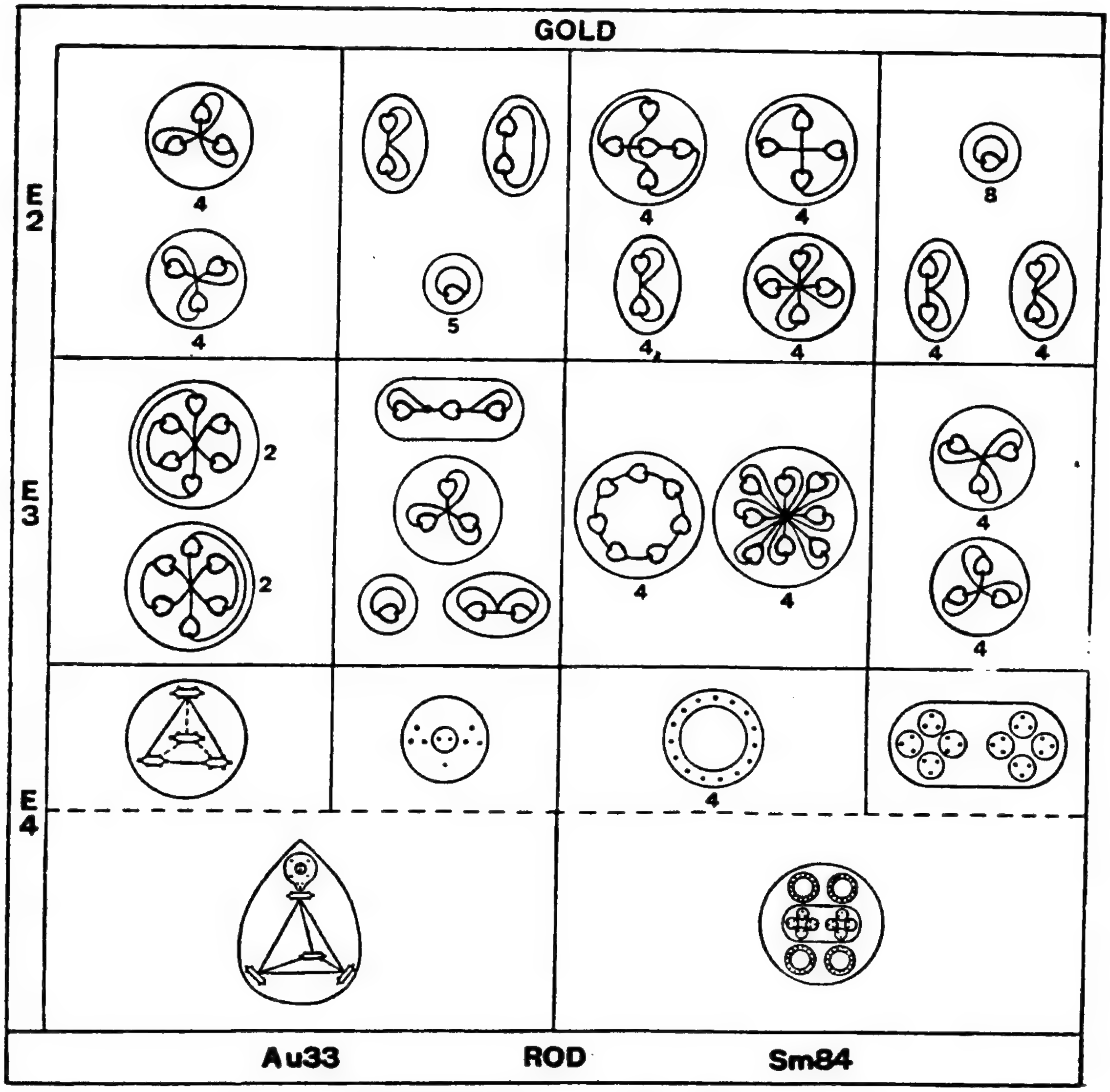


FIG. 40. DISINTEGRATION OF THE ROD OF GOLD

Fig. 41 shows the Dumb-bell group in a condensed form, from which the relationships in this group may be studied.

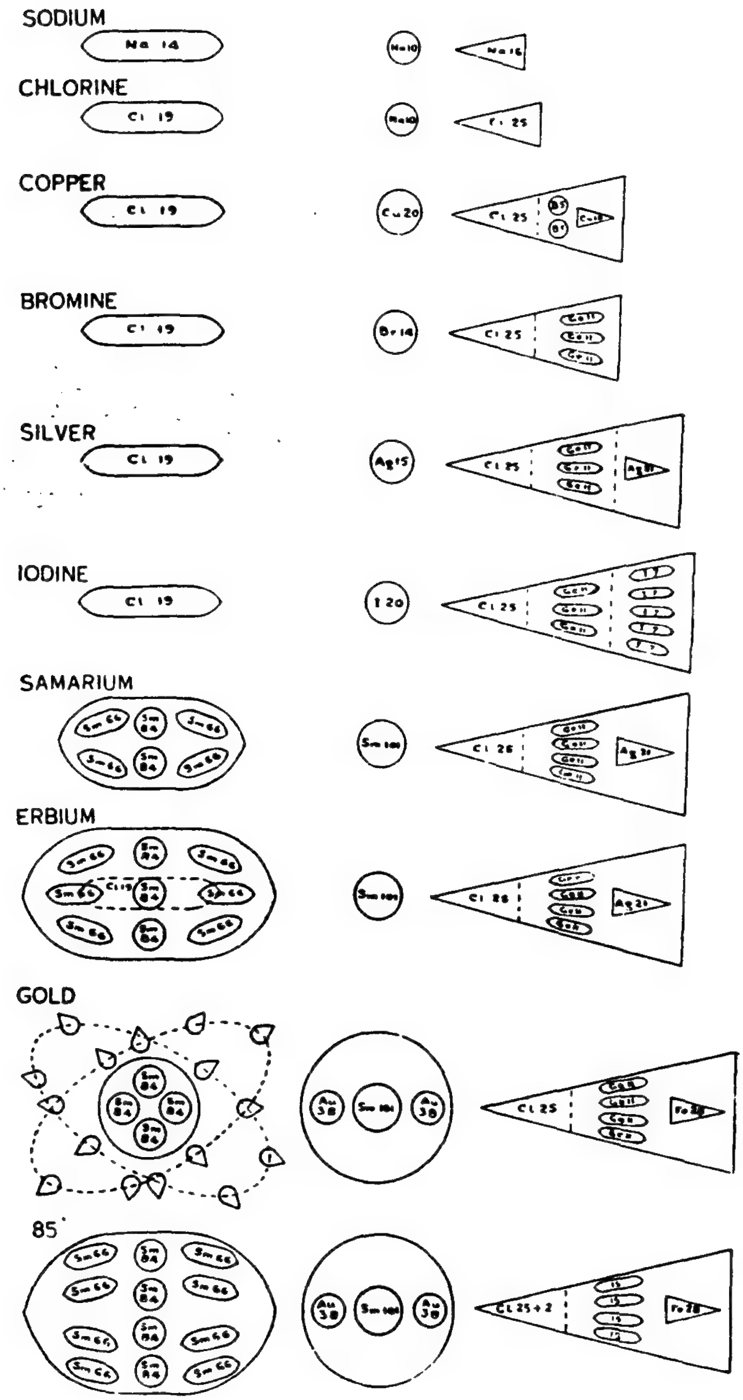


FIG. 41. THE DUMB-BELL GROUP

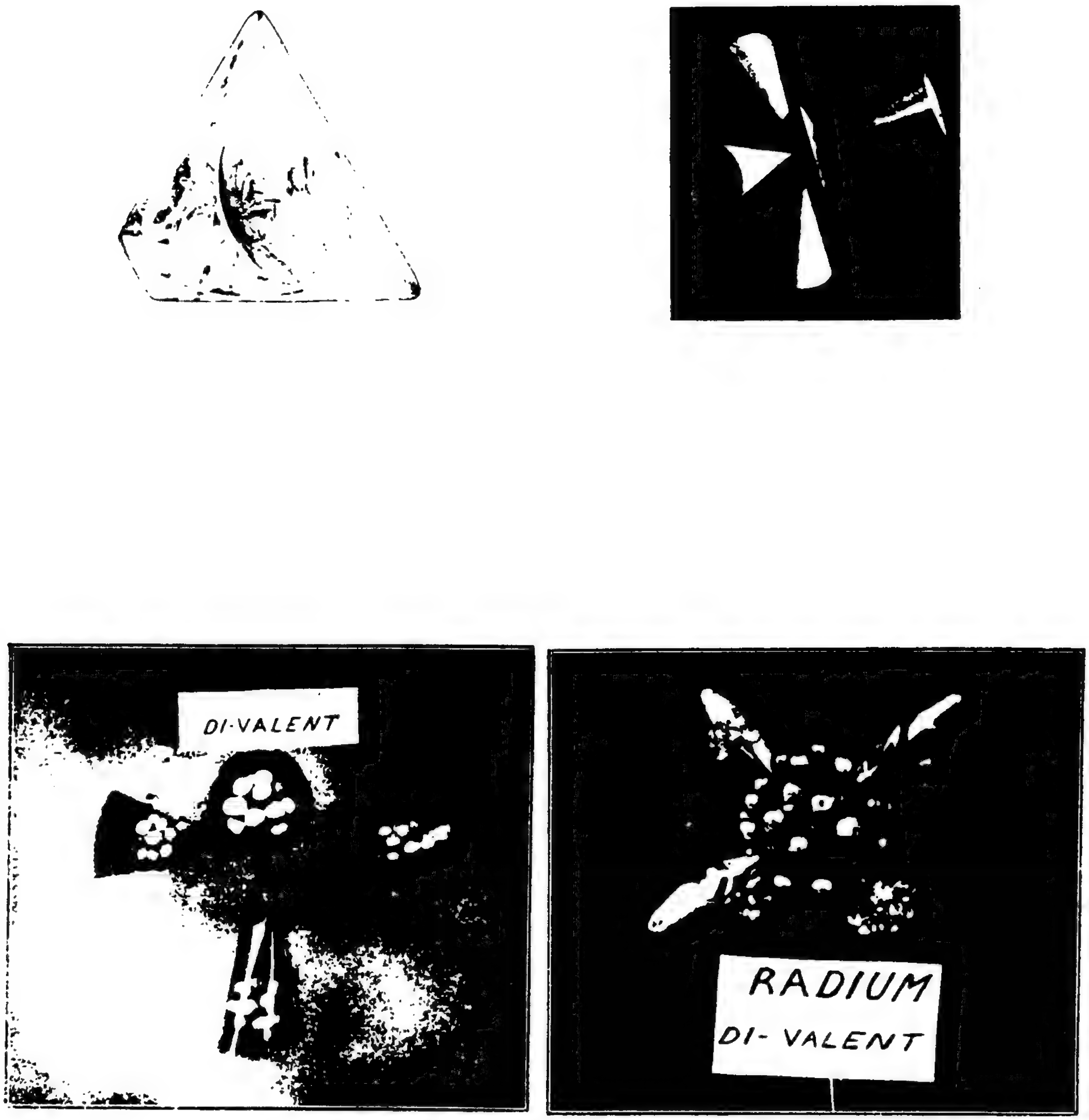


FIG. 42. TYPES OF THE TETRAHEDRON GROUP

CHAPTER V

THE TETRAHEDRON GROUP A

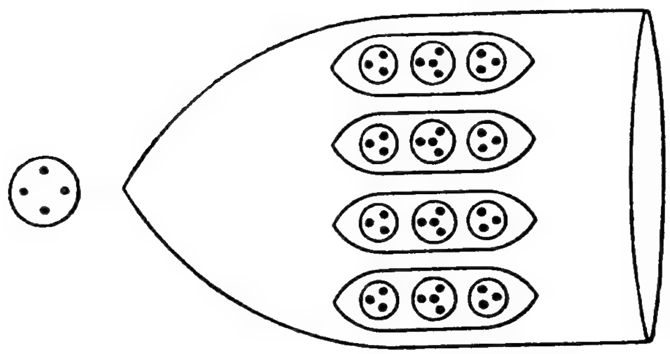
THE twelve elements in this group occur on the swing of the pendulum to the left of the central line.

They are all tetrahedrons in shape, with the exception of Oxygen, which is ovoid. Their characteristic valence is 2. Each element has four funnels of which two are positive and two negative. The last two elements add 4 spikes directed to the corners of the tetrahedron. Fig. 42.

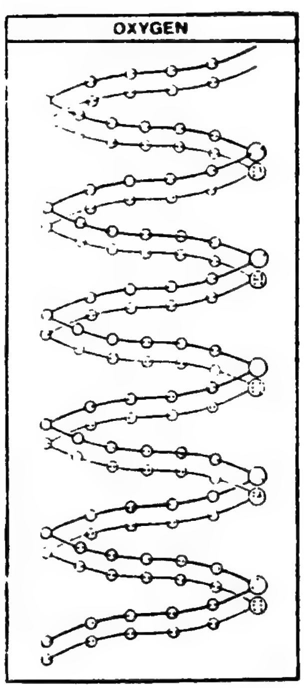
As we proceed with this study we shall find how continual are the repetitions, and how Nature, with a limited number of fundamental methods, creates by varied combinations her infinite variety of forms.

ATOMIC NO.	ANU	ELEMENT	CENTRE	4 FUNNELS	4 SPIKES
4	164	Beryllium	Be4	4 (Be10)	—
8	290	Oxygen	(55N2+5.0.7) +(55N2+5.0.7′)		—
20	720	Calcium	(8Li4+8Ad6) =Ca80	4 (Ca45+Ca70+Ca45) =4Ca160	—
24	936	Chromium	(8N6+8Ad6)	4 (Ca160+2Cr25)	—
38	1,568	Strontium	(8B5+8.I.7) =Sr96	4 (2Ca160+2Sr24)	—
42	1,746	Molybdenum	(N2+Sr96)	4 (2Ca160+2Mo46)	—
56	2,455	Barium	(I.7+Sr96)	4 (2Ca160+2Mo46+Ba33 +Li63b+Ba80)	—
60	2,575	Neodymium	(Ce667)	4 (2Ca160+2Mo46+Nd65)	—
70	3,131	Ytterbium	(Yb651)	4 (2Ca160+2Mo46+Ca160 +Yb48)=4Yb620	—
74	3,299	Tungsten	(Lu819)	4 (Yb620)	—
88	4,087	Radium	(Lu819)	4 (3Ca160+3Mo46)	4 (3Li63+Cu10)
92	4,267	Uranium	(Lu819)	4 (3Ca160+3Mo46)	4 (3Li63+Ur36 +Ur19)

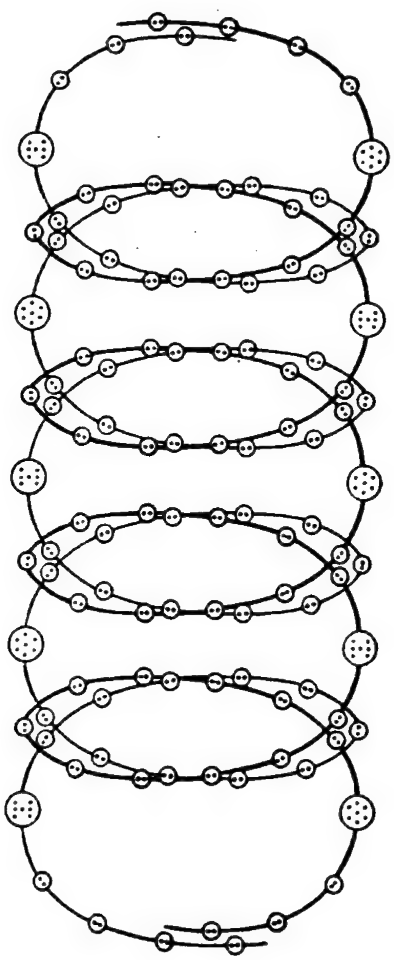
BERYLLIUM



OXYGEN



a



b

FIG. 43. BERYLLIUM, OXYGEN

ATOMIC NO. 4.

BERYLLIUM

Beryllium is the simplest member of this group. It consists of four funnels radiating from a central globe, each funnel opening in the face of a tetrahedron. Fig. 43.

Globe. The globe contains four Anu only. Be4.

Funnels. Each funnel contains four ovoids. These ovoids are composed of ten Anu arranged as two triplets and a quartet.

Beryllium = Be4 + 4 (4Be10)

Central Globe	=	4	Anu
4 funnels of 40 Anu	=	160	„
Total	=	164	Anu

$$\text{Number weight } \frac{164}{18} = 9.11$$

ATOMIC NO. 8.

OXYGEN

It was very early noted that Hydrogen, Oxygen and Nitrogen were quite different in structure from the general run of the elements. Nearly all the elements are built on the model of the regular solids, tetrahedron, cube and octahedron, but Hydrogen, Oxygen and Nitrogen seem totally distinct. An interesting suggestion has been made that these three may in reality belong to quite another scheme of elements.

The gaseous atom of Oxygen is an ovoid within which a spirally-coiled, snake-like body, with five brilliant points of light shining on each of the coils, revolves at a high velocity. The snake-like body is really double, one half being negative and one positive.

Fig. 43*a* shows diagramatically this double spiral. Oxygen, however, has an appearance of solidity due to the fact that the two spirals spin round a common axis, in opposite directions, and so present a continuous surface. The brilliant bodies seen in the atom are on the crests of the waves in the positive snake, and in the hollows in the negative one; small bead-like bodies interpose between the larger brilliant spheres. These smaller bodies making up the spirals are very simple, being tiny spheres of two Anu, N2. The larger spheres have seven Anu, but are of two types, O.7 and O.7′.

Fig. 43*b* is that of the Oxygen atom, showing the two spirals revolving in opposite directions producing the correct effect of a rounded body. One spiral is positive and the other negative, and each represents therefore one half of Oxygen. We shall call each ½ O. At first sight, the two halves seem alike, except for the difference in their twist; there is however a fundamental difference.

Each ½ O contains five large spheres of seven Anu. These are different in configuration according as they belong to the positive ½ O, or to the negative ½ O. Fig. 44.

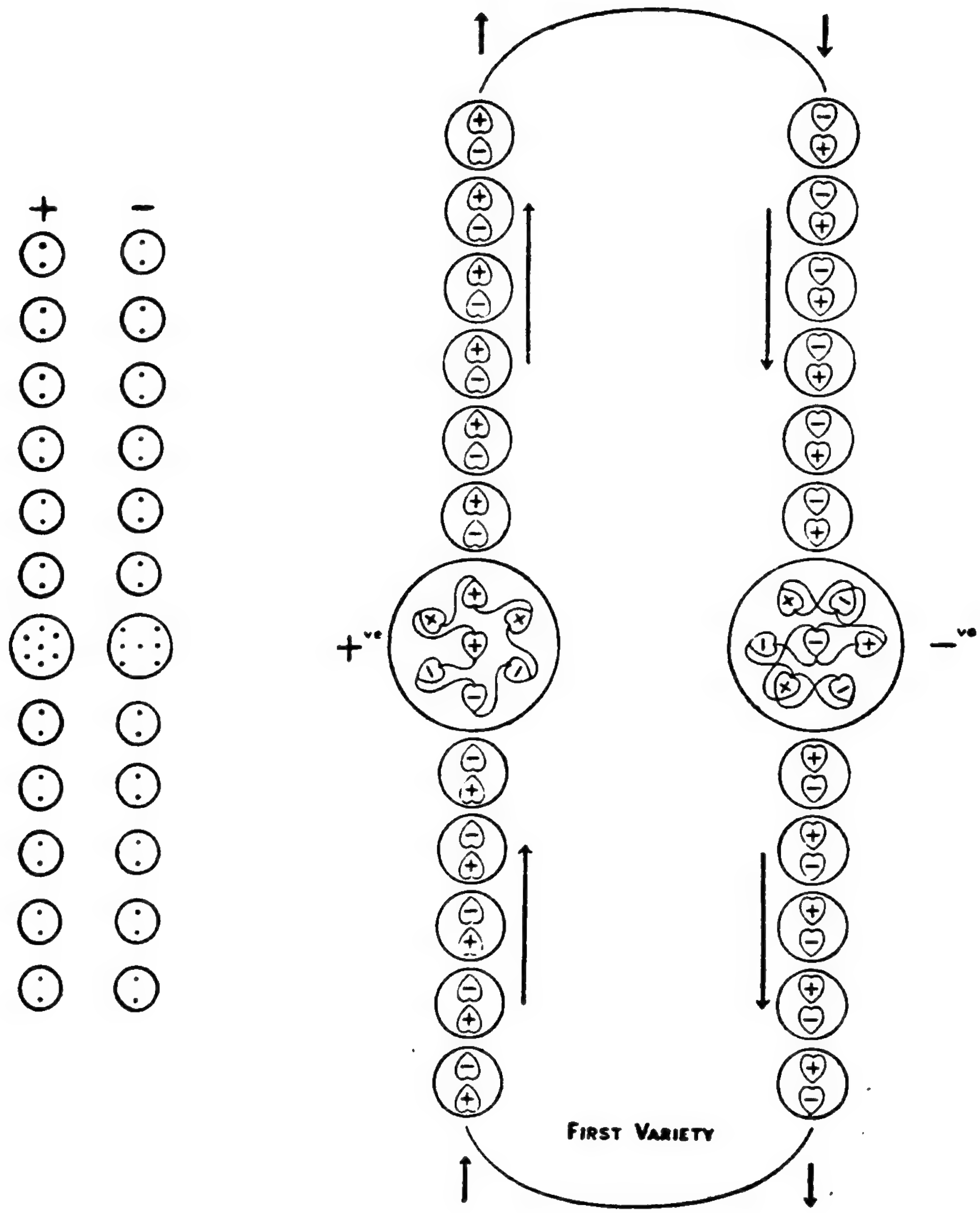


FIG. 44. PART OF OXYGEN, VARIETY 1.

Each ½ O is composed of five sections, which are all alike. A section consists of a group of 7 Anu, having above it 6 groups of N2, and below it 5 groups of N2. The five sections join together into one long string of beads, and then the whole string turns into a spiral.

From Fig. 44 we can note at once the principal difference in the two halves of the atom; it is in the group of 7 Anu. In the positive ½ O the O.7 is arranged in a particular way; in the centre is one positive Anu; 6 other Anu, 3 of them positive and 3 negative, are placed at the 6 points represented by the centres of the 6 sides of a cube. In the group of 7 Anu in the negative ½ O, there is a different arrangement; the centre is formed by one negative Anu; 6 other Anu, 3 positive and 3 negative, are arranged in pairs on three levels, one pair on a line with the centre, the other two pairs above and below at right angles to each other. The median line, however, is not at right angles to either, but somewhat aslant. To each group of 7 Anu there are attached 11 groups of 2 Anu, and the arrangement is shown in Fig. 44.

All this description, however, gives no real idea of the extraordinarily powerful nature of the forces which make Oxygen. How many types of force are involved is not yet known; three however have been noted. The operation of the first force appears to begin at the central positive Anu of the positive group of seven. That Anu gets charged by the Sun in a special way. The force, which is like blinding light, radiates out in all directions through the whorls of the Anu, and draws towards it 6 other Anu, 3 of them positive and 3 negative.

Then there wells up from the central Anu a second force. From the central Anu the force flows as indicated by the lines, following always this law, that a force always flows out from the bottom of an Anu, that is from its pointed end, and enters in at the top of it, at its heart-shaped depression. In the positive group of 7 Anu, the force flowing from the central Anu traverses the other six Anu and *re-enters* the central Anu at its heart-shaped depression. A complete circuit is thus made.

In so completing the circuit, the force causes a third force to manifest, as if by a kind of induction. It enters from the fourth dimension through the central Anu, and its operation is dual: first, it charges the group as a whole and then shoots upwards, and through each duad. It not only shoots up through them, it brings them into their position as a string of 6 duads. When it reaches the topmost duad, it shoots upwards still, if another section of the ½ O is above it; if there is no section above, the force curves over and enters the topmost duad of the negative ½ O, and shoots downwards through the 6 duads. If there were not then a group of 7 Anu the force would rush downwards gathering more duads as pearls on a string. But on the descent, after the 6 duads, it meets a stream of force coming to it at right angles.

This third force also issues from the central Anu of the positive 7; it shoots out at right angles to the ascending force. When the upward force in its descent meets this force at right angles, a vortex is created, whose effect is to bring first a negative Anu, and then round it 6 other Anu, three negative and three positive. When so brought into being this predominantly negative group of 7 Anu exercises a curious effect on the positive group. It is as if it existed in order to step down the tremendous energy welling in the positive seven, so as to make it utilizable for work. The flow of the force

within the negative 7 is as drawn in Fig. 44. But whereas, in the case of the positive group, the force issues at the bottom of the central Anu in one stream, here, in the negative group, that force as it issues at the bottom divides into two streams, each stream traversing three Anu, and then returning back to the central Anu from which it originated. If the diagram is carefully examined, it will be noted that one stream, for instance that drawn as going to the right, as it issues from the point of the central negative Anu, enters into a positive Anu, then enters a negative Anu, then enters a positive Anu, and then *returns* to the negative Anu, from which it enters into the central Anu. Similarly, the stream marked on the diagram as flowing from the point of the central Anu to the left enters into a negative Anu, then enters a positive Anu, then enters a negative Anu, and then *returns* to the positive Anu, from which it enters into the central Anu. A complete circuit is thus made.

The descending force continues to rush down the 5 duads, and then on to the 6 upper duads of the next section. When the last section is reached, the force curves over to the positive ½ O and enters it.

The spirally-coiled snake-like body which is Oxygen appears as a snake of white light; but when the snake is separated into its two constituents, the positive ½ O and the negative ½ O, the former is rose-red in colour, and the latter blue.

Oxygen=(55N2+5.O.7)+(55N2+5.O.7')

Positive half	55 spheres of 2 Anu			
	+ 5 discs of 7 Anu	=	145	Anu
Negative half	55 spheres of 2 Anu			
	+ 5 discs of 7 Anu	=	145	"
	Total	=	290	Anu

$$\text{Number weight } \frac{290}{18} = 16.11$$

Second Variety of Oxygen

It is mentioned above that from the positive 7 a force shoots out at right angles. After the negative 7 is made there is an interaction between the two. In some Oxygen atoms this interaction produces a kind of stress, and there arises between them a force which flows in from the fourth dimension and holds 4 Anu, two positive and two negative. Fig. 45. These 4 Anu are not encircled by any sphere wall; the force enters all four simultaneously, and does not go out of them. Why this body of 4 Anu exists is not known; of course it makes a heavier variety of Oxygen.

Positive section: 7+(11 × 2) Anu	=	29	Anu
Negative section " "	=	29	"
New group of 4 Anu	=	4	"
Total	=	62	Anu

Since there are five such pairs making up Oxygen the new variety contains 5 × 62 Anu=310 Anu.

$$\text{Number weight } \frac{310}{18} = 17.22$$

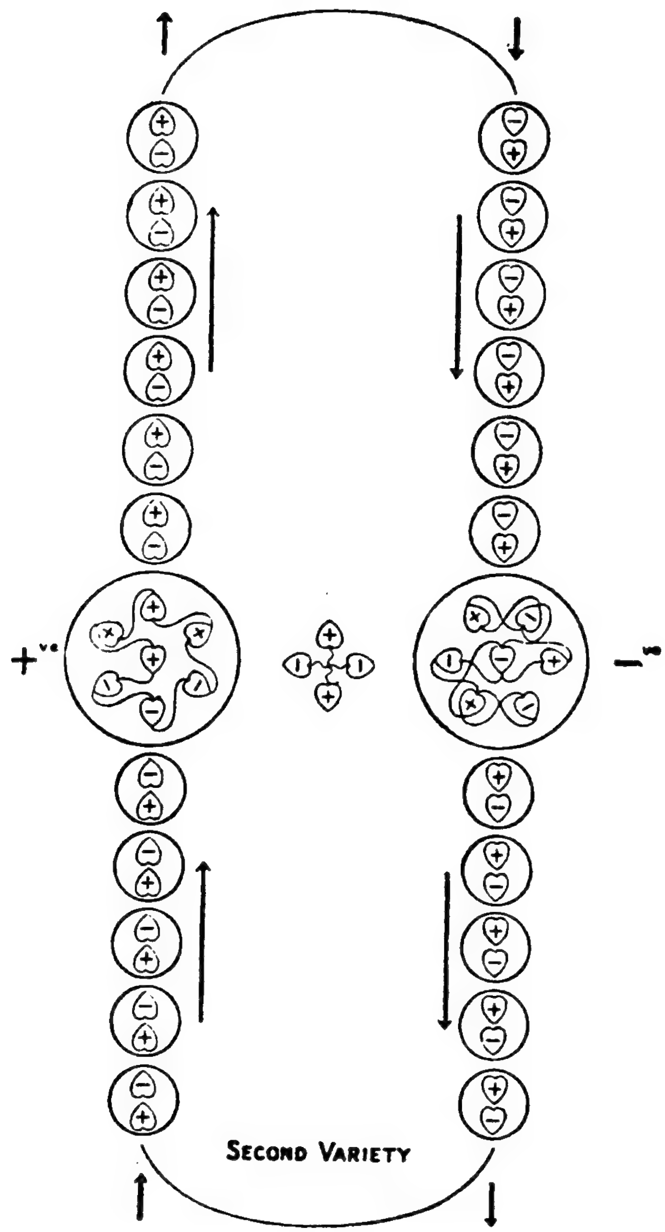


FIG. 45. PART OF OXYGEN, VARIETY 2

Even of this second variety, there are two variants. One is as shown in Fig. 45, where in the group of four the two positive Anu are vertical. But there is a second variant, where the two positive Anu are horizontal. In this position they are farther apart than when vertical. This gives rise to two shapes of this second variety. Each Oxygen has its sphere wall, which is ovoid. The ovoid of the second variety is naturally fatter round the middle than the ordinary variety. But of the second variety there is one which is fatter than the other, this being the case when the two positive Anu are horizontal.

Third Variety of Oxygen

This is probably not a natural variety, that is, it is not to be found in the atmosphere. It was artificially constructed, by tacking on to each ½ O, to the positive and to the negative, another pair of sections. This produced a very elongated Oxygen. How long this variety persists is not known, probably not very long.

Five pairs of sections of 58 Anu each	=	290	Anu
New pair of sections	=	58	,,
Total	=	348	Anu

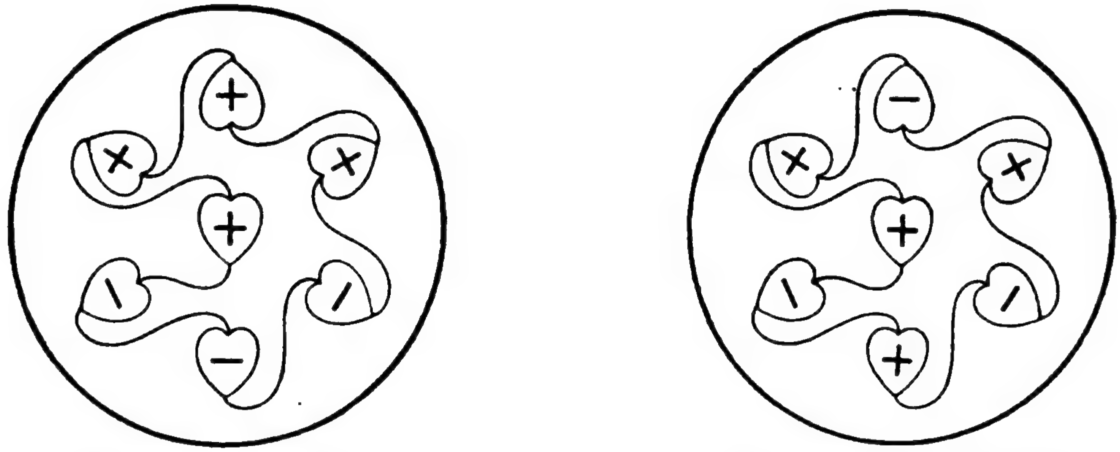
$$\text{Number weight } \frac{348}{18} = 19.33$$

In the few oxides so far examined, the Oxygen is of the normal Variety 1.

The Vitality Globule

In connection with quite a different series of investigations dealing with the problem of *Prana* or Vitality, an apparently similar group of 7 Anu to that in Oxygen was noted.

But later investigations showed that the conclusion arrived at that the Vitality Globule was the same as the brilliant 7 in Oxygen was erroneous, though the error is easily accounted for. The 7 in Oxygen and the 7 in the Vitality Globule appear so similar that it is only on close examination that the very slight difference between them is noted.



POSITIVE GROUP O.7 THE VITALITY GLOBULE

FIG. 46

At first glance the two groups in Fig. 46 seem to be the same, but closer examination will show the difference. In both, six of the seven Anu are arranged at the six points in space—north, south, east and west, zenith and nadir—and the seventh is in the centre. In both, the force flows from the bottom of the central Anu, which is positive, and it circulates as shown in the diagram. But there is a difference in the two Anu which make the zenith and nadir. In Oxygen, the Anu at the zenith is positive ; that in the Vitality Globule is negative. This makes the Anu at the nadir in Oxygen 7 negative, while that in the Vitality Globule is positive.

This slight difference in arrangement makes, however, a great difference in the behaviour of the two groups. It will be seen, in looking at the diagram of Oxygen 7, that the upper part of the group has three positive Anu, showing that, at a certain stage of the flow of force, the force passes into three positive Anu *in succession*, and then back again into the central Anu. On the other hand, in the Vitality Globule, the force flows alternatively from positive to negative, except of course at the end when the force flows back into the central positive Anu. The fact that there are 3 positive Anu in the upper part of Oxygen brings about a rigidity in the group. It therefore stands upright, as it spins round its axis, with the positive Anu at the zenith.

In the Vitality Globule, however, owing to the fact that the force flows alternatively into positive and negative, the group, though spinning round its axis, is not held rigidly in an upright position. It turns head over heels, or in any direction according to the influence of other forces. Yet both globules are intensely brilliant and not to be distinguished one from the other at a casual glance. Nevertheless, the difference between them is fundamental, as the Vitality group is charged with a force from the Sun which is called Prana or Vitality, which emanates from the Second Aspect of the Logos, while the Oxygen group is charged with a similar force which also comes from the Sun, but from the Third Aspect of the Logos. One group cannot be transformed into the other, because there is a fundamental difference in the forces which play through each. Though no research has been made into the matter, probably the Vitality Globule does *not* enter into chemical combination with other groups.

OZONE

The appearance of Ozone is indicated in Fig. 47. It is composed of three Oxygen snakes, that is, of one Oxygen atom of two snakes, and a third extra snake of half Oxygen. These three snakes are at the points of an equilateral triangle. They are on one plane, so that as they revolve, the large bodies within each snake come together at the nodes. Ozone being thus $\frac{1}{2}$ (O), it is found that there are two varieties of Ozone. Fig. 47 shows one variety made of two positive snakes and one negative. The second variety of Ozone is composed of two negative snakes and one positive.

A surprising fact was noted, that the first variety of Ozone, *i.e.*, two positive and one negative, always rose in the air. It cannot be lighter, because the number of Anu in both varieties of Ozone are the same, that is 435. No investigation was made to decide whether positive Ozone rose because of some repulsion to gravity, or because there was some force of a positive electrical quality radiating from the earth from which positive Ozone rebounded. At the height of the Blue Mountains near Sydney, about 3,000 feet above sea level, all the specimens examined of Ozone were positive. Compared with negative Ozone, the positive variety gave a specially clean impression, suggesting that perhaps the sense of cleanness of the air in mountain regions may be due less to the absence of dust particles and more to the presence of positive Ozone.

It was noted that Ozone $\frac{1}{2}$ (O_3) has a tendency to revert to Oxygen, leaving one snake to go and find a mate for itself. It was also noted that electrical action breaks up Oxygen into its two constituent halves.

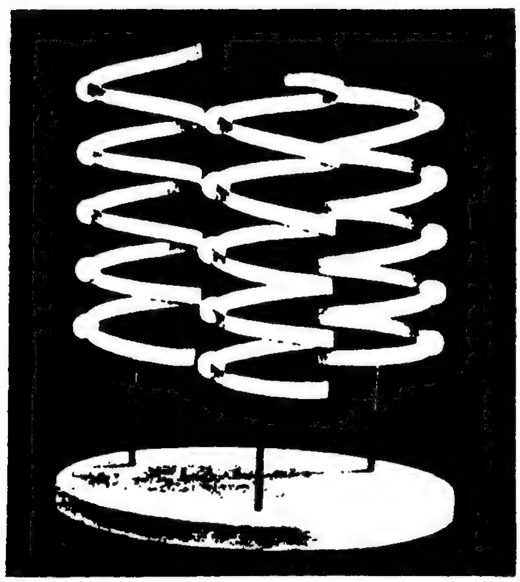


FIG. 47. OZONE

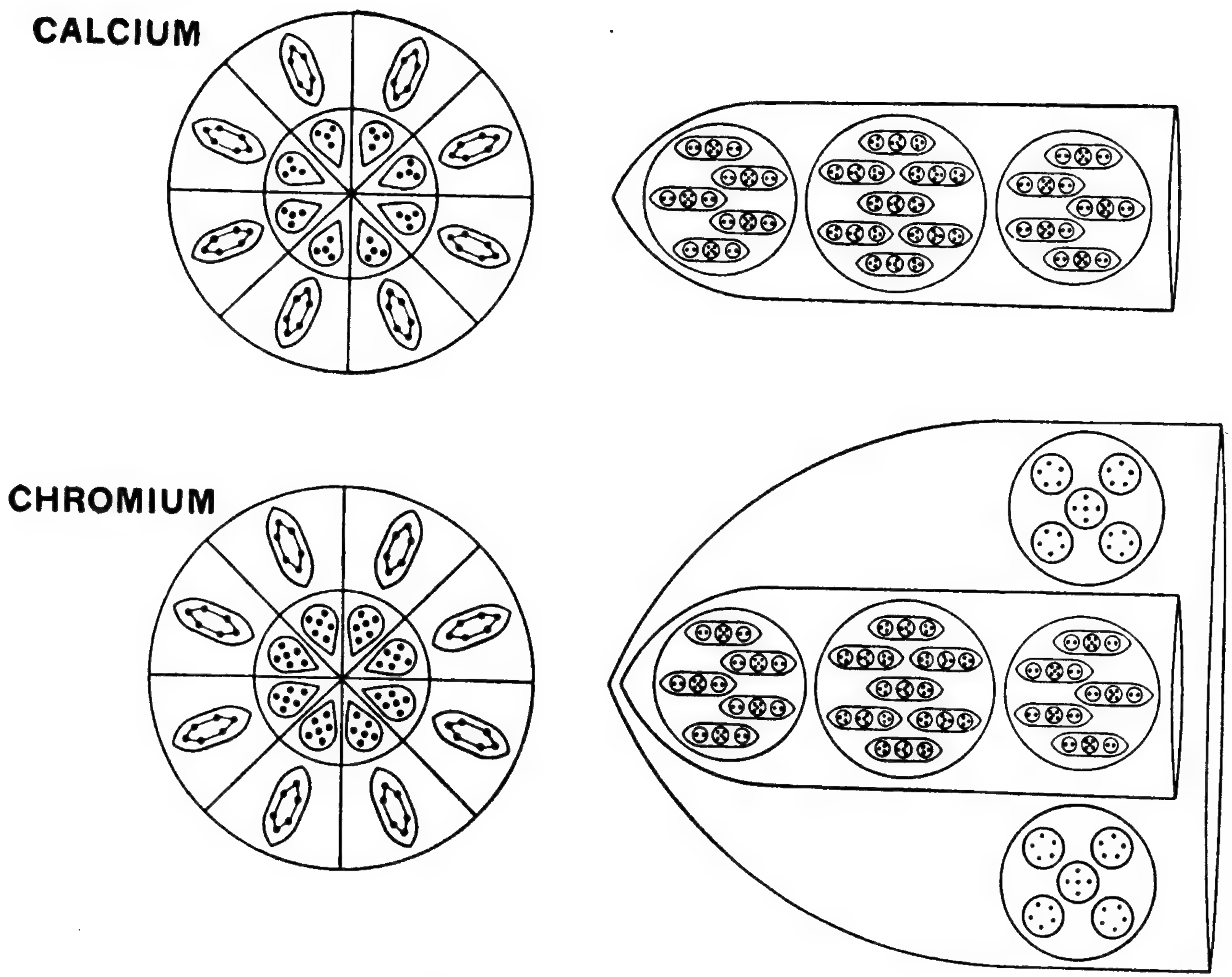


FIG. 48. CALCIUM, CHROMIUM

ATOMIC NO. 20.

CALCIUM

Calcium follows the pattern of Beryllium, but 720 Anu are packed into the simple Beryllium form. Fig. 48.

Central globe. The central globe is double, globe within globe, and is divided into eight segments radiating from the centre like an orange; the internal part of the segment, that belonging to the inner globe, has a triangular body within it containing four Anu, Li4. The external part, belonging to the encircling globe, shows the familiar Ad6.

Funnels. Calcium contains in each funnel three spheres, of which the central one, Ca70, has within it seven ovoids, Be10, identical with those of Beryllium. The spheres, Ca45, above and below the central sphere, each contain five ovoids each of 9 Anu. The funnels thus contain 160 Anu and may be distinguished as Ca160. The spheres Ca70 and Ca45 occur frequently.

Calcium = (8Li4+8Ad6)+4 (5Al.9'+7Be10+5Al.9')
= Ca80 +4 (Ca45+Ca70+Ca45)
= Ca80 +4 (Ca160)

Central globe	=	80	Anu
4 funnels of 160 Anu	=	640	"
Total	=	720	Anu

Number weight $\frac{720}{18} = 40.00$

ATOMIC NO 24.

CHROMIUM

Central globe. The globe is identical with that of Calcium as regards its external segments. In the internal segments the group N6 is substituted for the Li4. Fig. 48.

Funnels. The funnels are very similar to those of Calcium save that two extra spheres are added, the funnels being widened to accommodate them. Each funnel contains the three spheres which form the Calcium funnel, Ca160, and two extra spheres, Cr25. These two extra spheres contain five quintets of which two pairs are to each other as object and image.

Chromium = (8N6+8Ad6)+4 (Ca160+2Cr25)

Central globe	=	96	Anu
4 funnels each 210 Anu	=	840	"
Total	=	936	Anu

Number weight $\frac{936}{18} = 52.00$

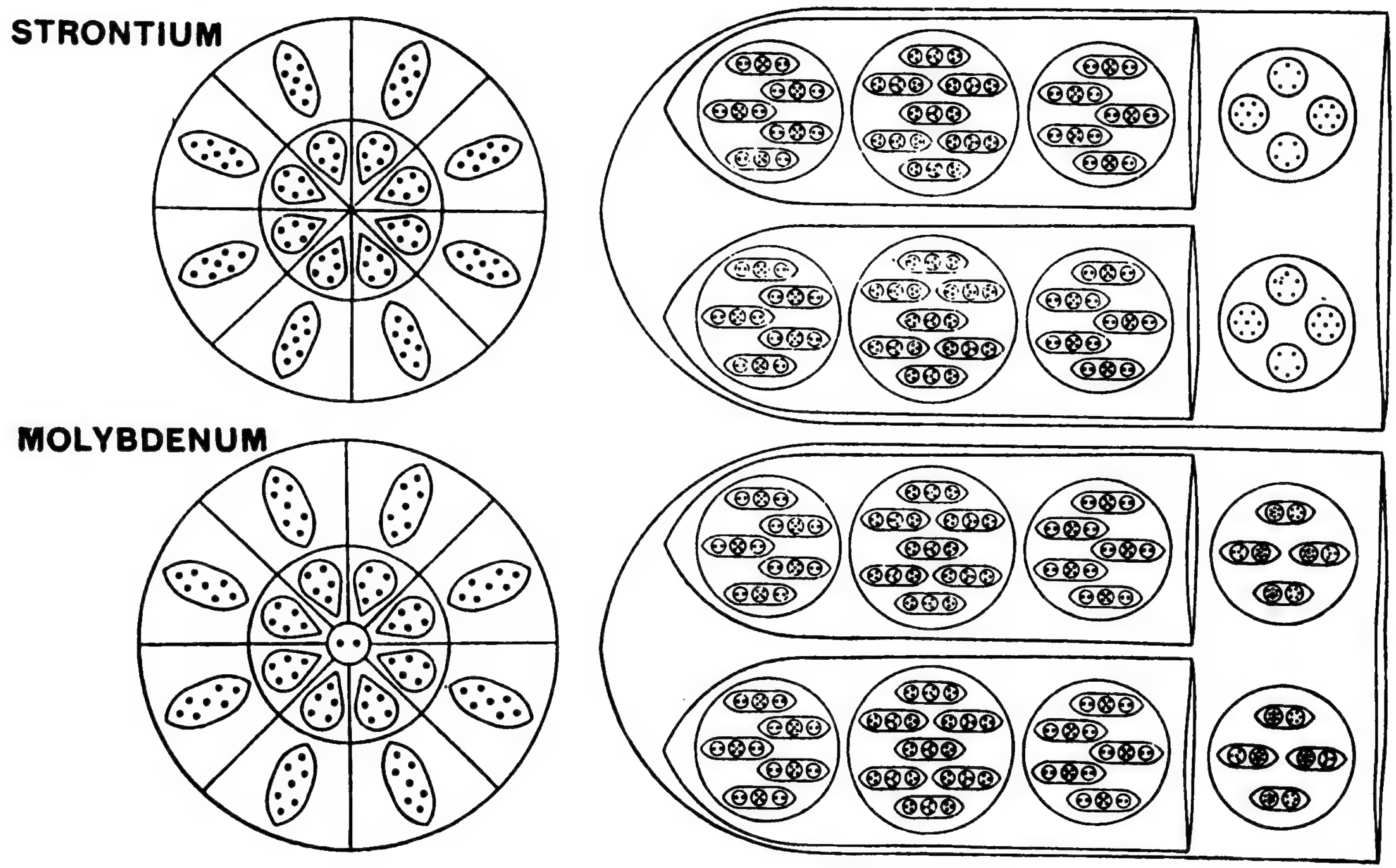


FIG. 49. STRONTIUM, MOLYBDENUM

ATOMIC NO 38.

STRONTIUM

Central globe. The number of the divisions of the double sphere of the central globe is the same as in Calcium, but the contents differ. The cigars, Ad6, in the external segments are replaced by ovoids containing seven Anu, I.7. The internal segments contain triangles with five Anu. The whole makes up Sr96. Fig. 49.

Funnels. Within the funnel there are eight spheres. The six lower spheres are identical with those in Calcium and make up two Calcium funnels, *i.e.* 2Ca160. Each of the highest pair of spheres, Sr24, contains four subsidiary spheres, with groups of 5, 7, 7 and 5 Anu respectively. These are B5, I.7, I.7 and B5. The I.7 groups are identical with those in Gold, but the difference of pressure in Gold makes the containing body spherical instead of ovoid; similar groups are seen in the top ring of the Iodine funnel, where also the group is oval in form.

Strontium = Sr96+4 (2Ca160+2Sr24)

Central globe	=	96	Anu
4 funnels of 368 Anu	=	1472	„
Total	=	1568	Anu

Number weight $\frac{1568}{18} = 87.11$

ATOMIC NO. 42.

MOLYBDENUM

This element closely resembles Calcium and Strontium. It differs from Strontium only in the composition of the highest pair of spheres in the funnel, and in the presence of a little sphere containing two Anu in the middle of the central globe. Fig. 49.

Central globe. The outer sections of the central globe contain the group I.7, and the inner sections contain the groups B5, exactly as in Strontium. In addition we find a sphere of two Anu, N2, in the centre of the globe.

Funnels. Each funnel contains two complete Calcium funnels, 2Ca160, as in Strontium. The two topmost spheres in the funnel each contain eight smaller spheres. Two of these are Li4, two B5 and four I.7, making 46 Anu in all, Mo46. The total in one funnel is thus 2Ca160+2 Mo46, making 412 Anu.

Molybdenum = (Sr 96+2)+4 (2Ca160+2Mo46)

Central globe	=	98	Anu
4 funnels of 412 Anu	=	1648	„
Total	=	1746	Anu

Number weight $\frac{1746}{18} = 97.00$

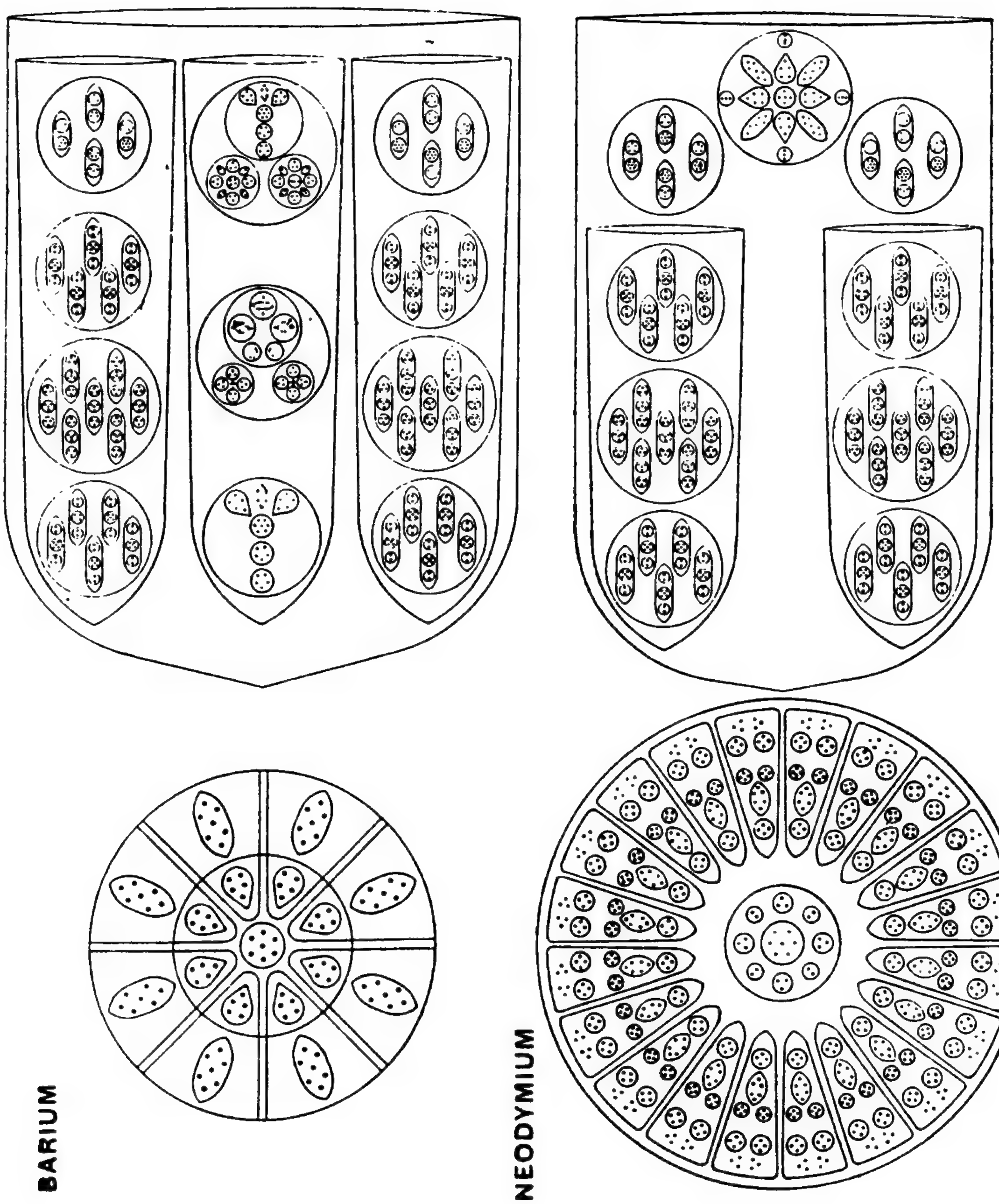


FIG. 50. BARIUM, NEODYMIUM

ATOMIC NO. 56.

BARIUM

This element closely resembles Calcium and Strontium but introduces some new bodies into its funnels and globe. Fig. 50.

The Central globe is exactly similar to that of Strontium, save that it has an I.7 in the centre.

Funnels. In the funnels we find two Calcium funnels, 2Ca160, at the head of each of which appears the sphere Mo46. Within the funnels appears also a third rather complex segment. It contains first a new body Ba33, consisting of four fives and a seven, and an Ad6 group round which two of the fives revolve. This body, Ba33, is destined to play a prominent part in the powerful central globe of Radium.

We find next, in this central segment in the funnel of Barium the material of the Lithium spike, Li63, re-arranged as a sphere. This may have been borrowed from the adjacent element Caesium. The third sphere, Ba80, in this segment, contains the group Ba33, with two attendant spheres of 24 and 23 Anu respectively, which suggest in their arrangement the centre of the globe of Lutecium and Radium.

Barium = (Sr96+I.7)+4 (2Ca160+2Mo46+Ba33+Li63b+Ba 80)

Central globe	=	103	Anu
4 funnels of 588 Anu	=	2352	„
Total	=	2455	Anu

$$\text{Number weight } \frac{2455}{18} = 136.4$$

ATOMIC NO. 60.

NEODYMIUM

This element much resembles Molybdenum in respect of its funnels, but has a much larger central globe. Fig. 50.

Central globe. The globe has a central portion of 27 Anu, which is also found in Cerium, as well as in the later members of the group, Tungsten and Uranium.

Round this centre we find 20 segments, each containing a group of 32 Anu very similar to the group Ba33 found in Barium and Radium. The whole is similar to that of Cerium, Ce667.

Funnels. In each funnel we find first two complete Calcium funnels, 2Ca160, then two spheres Mo46, and finally a completely new sphere. It is composed of a quintet M-Ne5, then 4 quintets B5, then four I.7 and 4 triplets, arranged so as to form a symmetrical pattern as shown. The whole make the group Nd65.

Neodymium = (Ce27+20Ce32)+4 (2Ca160+2Mo46+Nd65)

Central globe	=	667	Anu
4 funnels of 477 Anu	=	1908	„
Total	=	2575	Anu

$$\text{Number weight } \frac{2575}{18} = 143.06$$

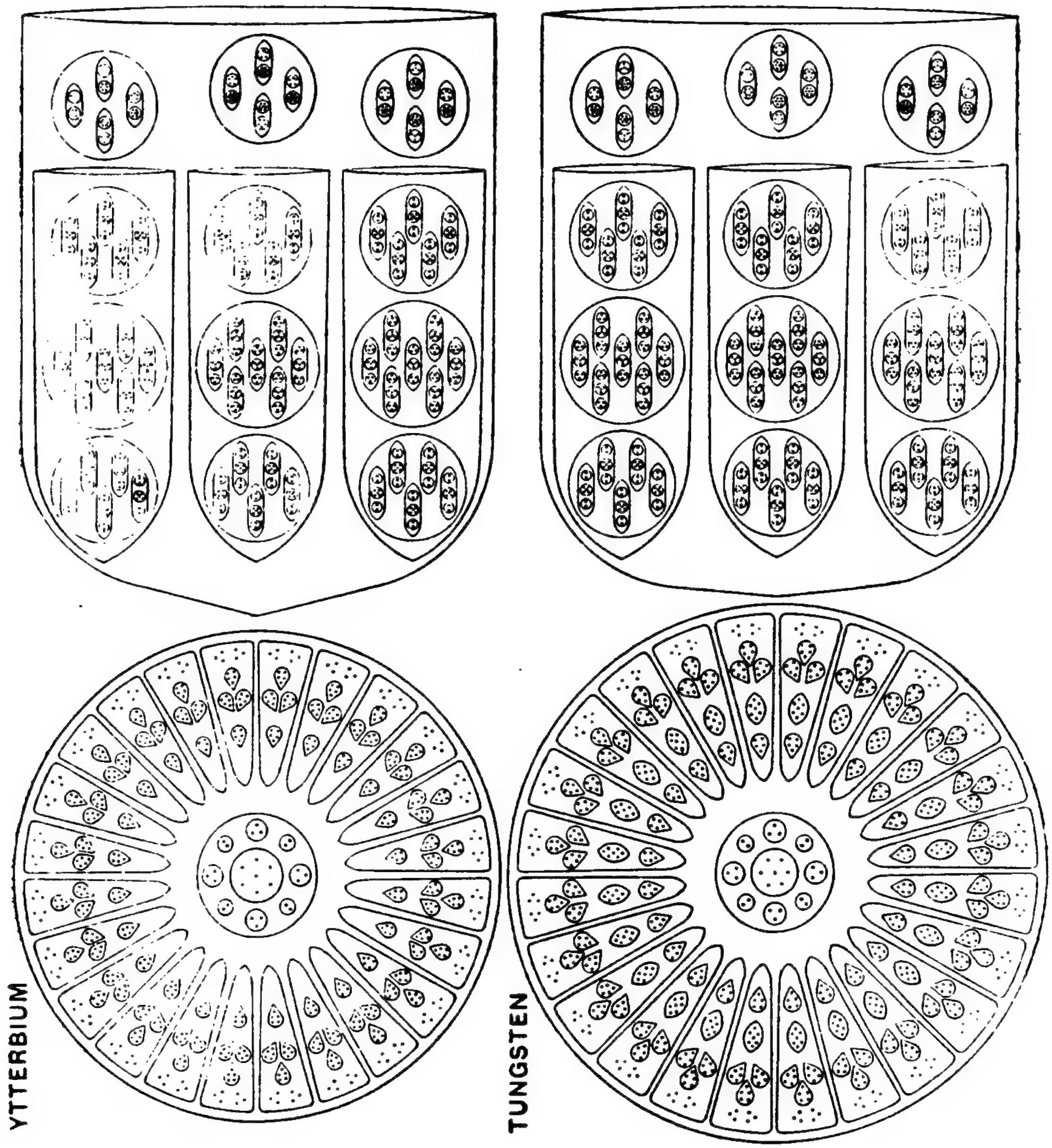


FIG. 51. YTTERBIUM, TUNGSTEN

ATOMIC NO. 70.

YTTERBIUM

This element is built up in a manner somewhat similar to Neodymium. Fig. 51.

Central globe. The centre-piece of the globe is Ce27. Round this radiate 24 segments, each of 26 Anu, Yb26. This central globe contains 651 Anu.

Funnels. Each funnel contains three Ca160, two Mo46 and a new sphere Yb48, making up 620 Anu. The sphere Yb48 consists of four ovoids each containing twelve Anu.

Ytterbium = (Ce27+24Yb26)+4 (2Ca160+2Mo46+Ca160+Yb48)

Central globe	=	651	Anu
4 funnels of 620 Anu	=	2480	,,
Total	=	3131	Anu

$$\text{Number weight } \frac{3131}{18} = 173.94$$

ATOMIC NO. 74.

TUNGSTEN

Tungsten may be said to be a stage between Ytterbium and Radium. In fact Tungsten is almost exactly Radium without the spikes which are the distributive agency of Radium. Its central sphere, Lu819, is identical with that of Radium, except that the six Anu at the outer end of each section are not equidistant but are definitely arranged in the cigar form. In the case of Radium it is evidently the speed of revolution which overcomes their cohesion. In Tungsten the speed of revolution is much less, and the element is only slightly radio active. The funnels of Tungsten are almost identical with those of Radium, except that Tungsten contains two more Anu in each funnel. Fig. 51.

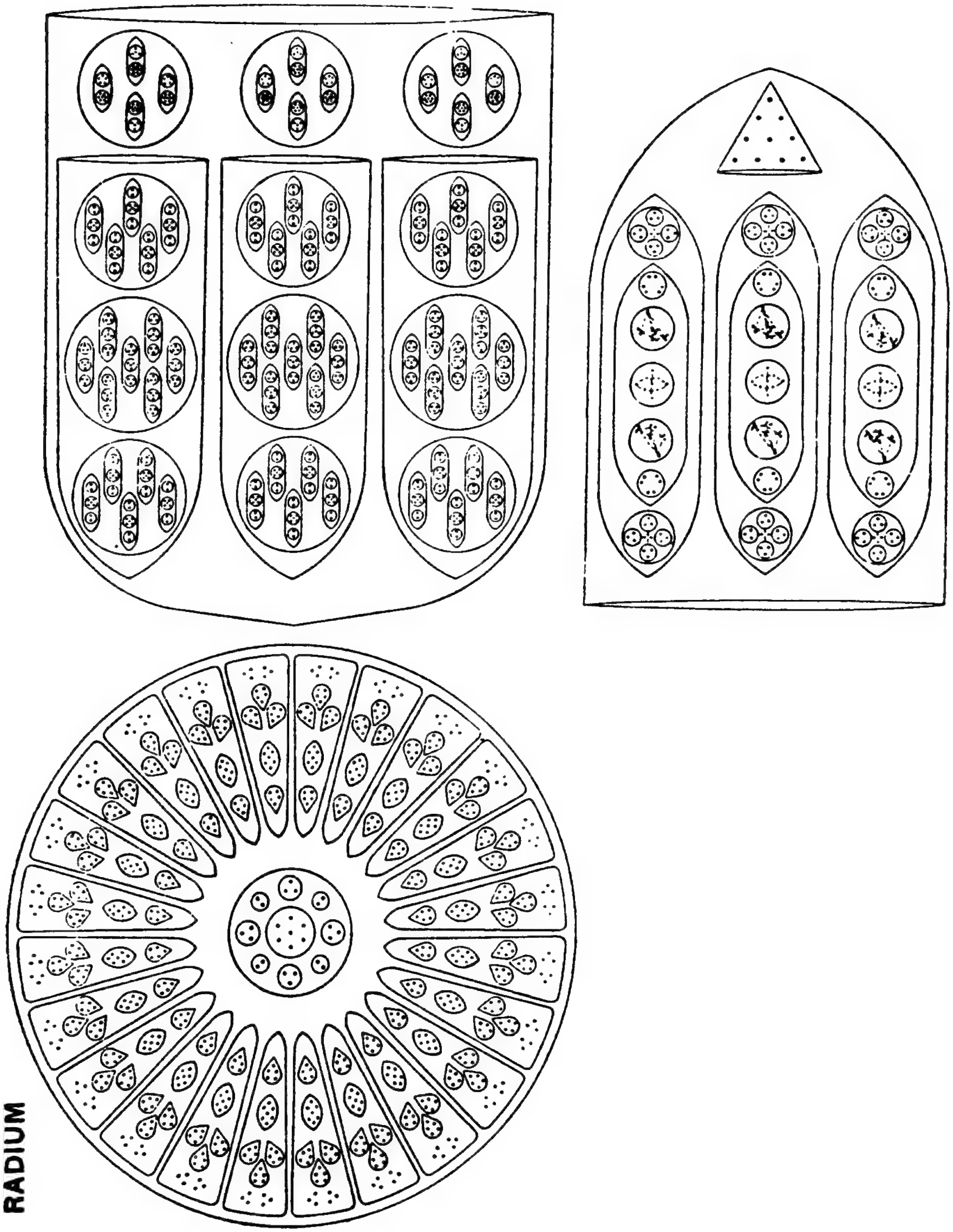
Central globe. The globe consists of a central sphere, Ce27, and 24 sections containing Ba33, making up 819 Anu in all. This sphere is first met with in Lutecium and is therefore identified as Lu819. As has been pointed out above, it occurs in Radium and other radio-active elements.

Funnels. The Tungsten funnels are exactly like those of Ytterbium. Each funnel contains three sections, first three Calcium funnels, Ca160, and then two Mo46 spheres and one Yb48.

Tungsten = Lu819+4 (2 Ca160+2Mo46+Ca160+Yb48)

Central globe	=	819	Anu
4 funnels of 620 Anu	=	2480	,,
Total	=	3299	Anu

$$\text{Number weight } \frac{3299}{18} = 183.3$$



RADIUM

FIG. 52. RADIUM

ATOMIC NO. 88.

RADIUM

Radium is built on a pattern similar to the other elements of its group. Fig. 52.

Central globe. Radium has a complex central sphere, Lu819, extraordinarily vivid and living; the whirling motion is so rapid that continued accurate observation is very difficult; the sphere is more closely compacted than the centre-piece in many other elements, and is much larger in proportion to the funnels and spikes than is the case with some of the other elements in the group; in the lighter elements the funnels are much larger than the centres, whereas in Radium the diameter of the sphere and the length of the funnel or spike are about equal. The heart of the sphere is a globe containing seven Anu. This globe is the centre of two crosses, the arms of which show respectively groups with two and three Anu. Round this central sphere are arranged, as on radii, twenty-four segments, each containing five bodies, as in Ba33—four quintets and a septet—and six loose Anu, which float horizontally across the mouth of the segment; the whole sphere has thus a kind of surface of Anu.

In the rush of the streams presently to be described, one of these Anu is occasionally torn away, but is generally, if not always, replaced by the capture of another which is flung into the vacated space.

Funnels. The funnels are identical with those of Tungsten except that they contain two fewer Anu. We find first the three Calcium funnels, 3 Ca160, and then three Mo46, instead of two Mo46 and one Yb48.

The three sections in the Radium funnel are thus similar to one another. They stand at the corners of a triangle and not side by side.

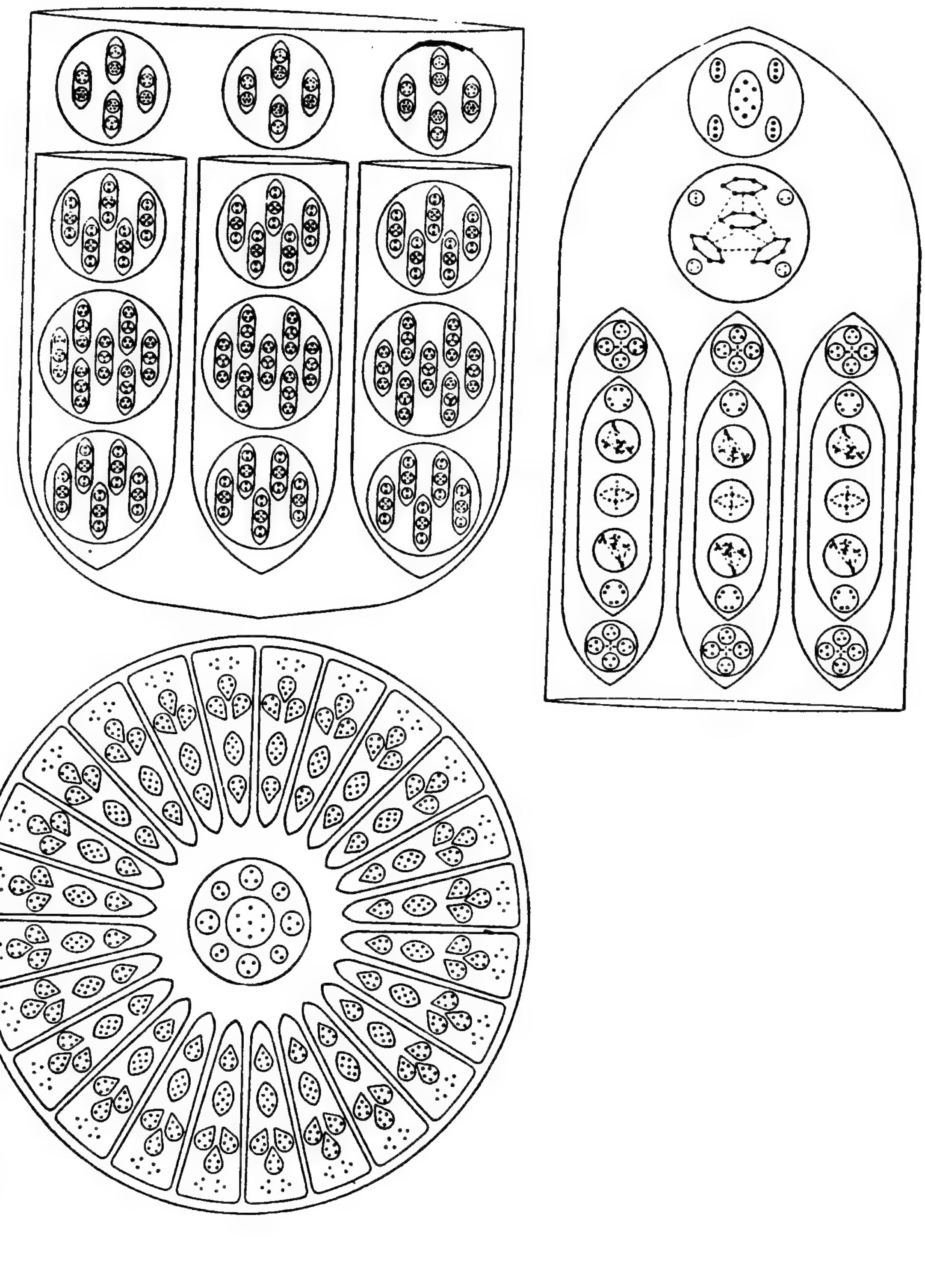
Spikes. Radium has four spikes alternate with the funnels and pointing to the angles of the tetrahedron. Each spike contain three Li63 and a cone or cap of ten Anu, Cu10, floating above the three Li63.

A very peculiar result, so far unobserved elsewhere, arises from the extraordinarily rapid whirling of the central sphere. A kind of vortex is formed, and there is a constant and powerful indraught through the funnels. By this, particles are drawn in from without, and these are swept round with the sphere, their temperature becoming much raised, and they are then violently shot out through the spikes. It is these jets which occasionally sweep away an Anu from the surface of the sphere. These particles may be single Anu, or they may be bodies from any of the etheric levels; in some cases the bodies break up and form new combinations. In fact, Radium seems like a kind of vortex of creative activity, drawing in, breaking up, recombining, shooting forth—a most extraordinary element.

Radium = Lu819+4 [3 (Ca160+Mo46)]+4 (3Li63+Cu10)

Central globe	=	819	Anu
4 funnels of 618 Anu	=	2472	"
4 spikes of 199 Anu	=	796	"
Total	=	4087	Anu

$$\text{Number weight } \frac{4087}{18} = 227.05$$



URANIUM

FIG. 53. URANIUM

ATOMIC NO. 92

URANIUM

Uranium is formed on the same pattern as Radium, but is far less active. It has four spikes as well as four funnels. Fig. 53.

Central Globe. This is similar to that of Lutecium, Tungsten and Radium, except that the six Anu at the outer end of each section are *not* equidistant, but definitely arranged as a cigar. In this it follows Tungsten.

Funnels. The four funnels are exactly similar to those in Radium. Each contains three Calcium funnels, 3 Ca160, and three Mo46 spheres.

Spikes. The four spikes contain the three Lithium spikes as in Radium, but instead of the little cap of ten Anu there come two small globes. One of these contains Ad24 and 4 triplets, Ur36, and the other, four triplets and one L7 = Ur19. The first of these spheres, Ur36, contains components of a Helium atom. Here we have the suggestion of the composition of the Helium atom that we should expect, since Helium is produced by the disintegration of Uranium.

Uranium = Lu819+4 [3 (Ca160+Mo46)]+4 (3Li63+Ur36+Ur19)

Central globe	=	819	Anu
4 funnels of 618 Anu	=	2472	"
4 spikes of 244 Anu	=	976	"
Total	=	4267	Anu

$$\text{Number weight } \frac{4267}{18} = 237.06$$

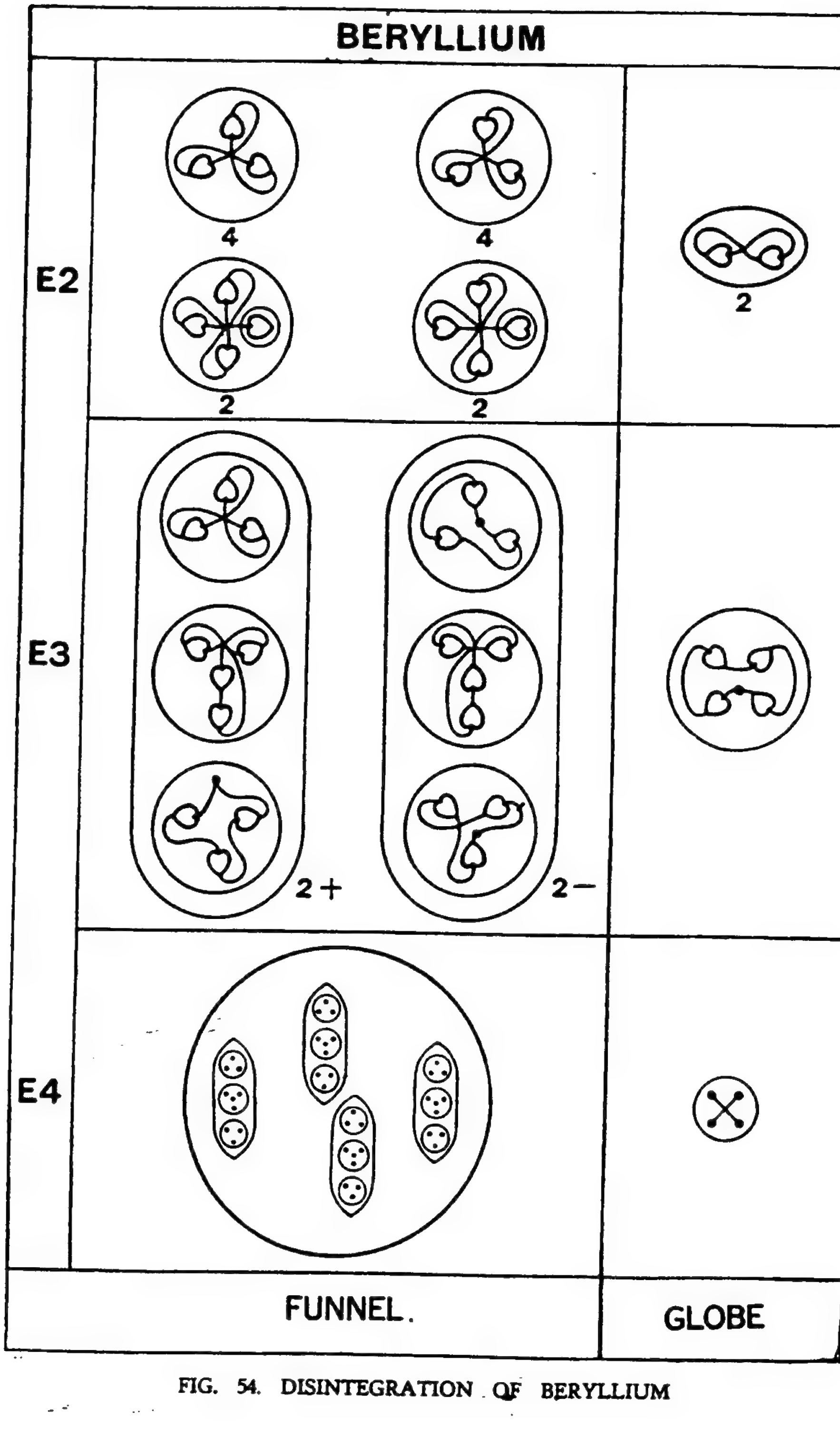


FIG. 54. DISINTEGRATION OF BERYLLIUM

DISINTEGRATION OF THE TETRAHEDRON GROUP A

DISINTEGRATION OF BERYLLIUM

This element contains four similar funnels and a central globe. The E4 groups consist of these five bodies set free. Fig. 54.

Each funnel, released from pressure, assumes a spherical form, with its four ovoids, Be10, spinning within it.

On the E3 level, these four ovoids, Be10, are set free, and two from each funnel are seen to be positive and two negative.

On the E2 level these decads each disintegrate into two triplets and a quartet, the positive with the points outward, the negative with the points inward.

The central globe on the E4 level remains a sphere containing a whirling cross.

On the E3 level the cross shows a change in the resultant force-lines, preparatory to its breaking into two duads an the E2 level.

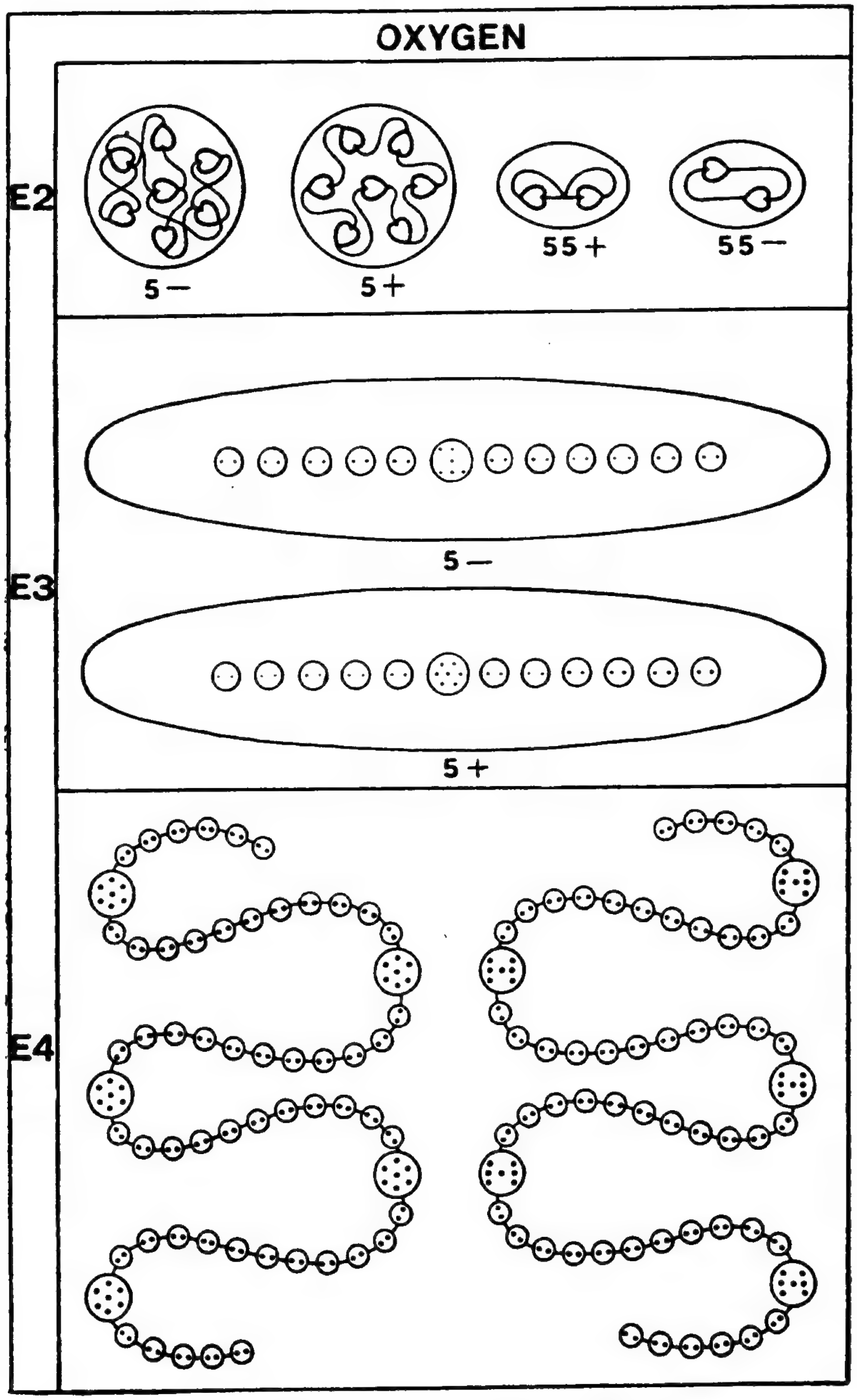


FIG. 55. DISINTEGRATION OF OXYGEN

DISINTEGRATION OF OXYGEN

On the E4 level the two snakes divide. The positive and negative snakes each consist of fifty-five duads and five brilliant discs. These discs have seven Anu but are differently arranged; those in the positive snake have the Anu arranged as in the Iodine ovoids, I.7, whereas the negative snake has them arranged as in a capital H. The snakes show the same extraordinary activity on the E4 level as on the gaseous, twisting and writhing, darting and coiling.

On the E3 level the snakes break into 10 fragments, each consisting of a disc, with six beads, N2, on one side and five on the other, remaining as lively as the original snake.

On the E2 level the snakes shiver into their constituent discs and beads, there yielding the ten discs, five positive and five negative, and 110 beads, 55 positive and 55 negative.

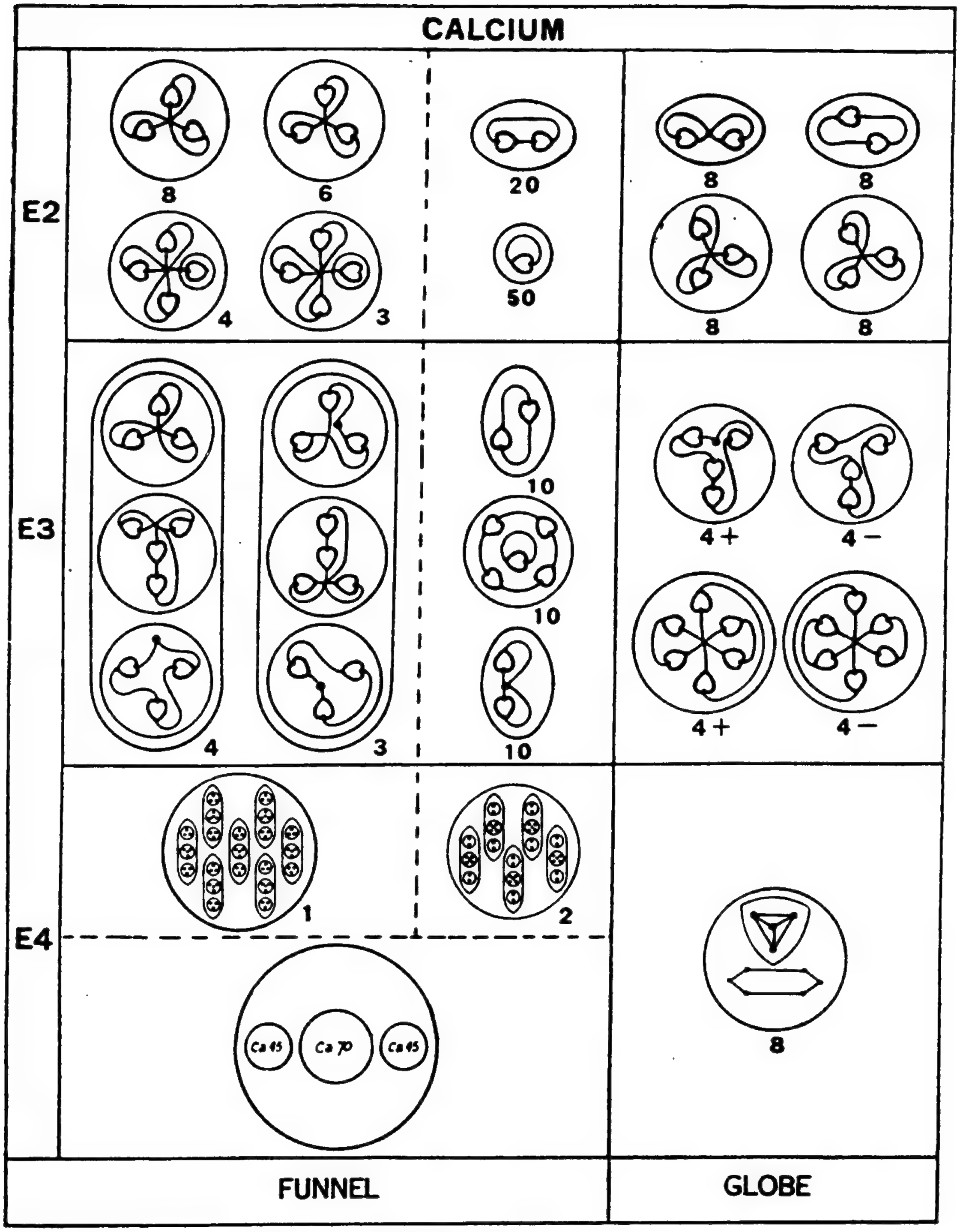


FIG. 56. DISINTEGRATION OF CALCIUM

DISINTEGRATION OF CALCIUM

Funnel. The funnels as usual assume a spherical form on the E4 level, and show three spheres, two Ca45 and one Ca70, each containing ovoids. At the second stage these three spheres, still on the E4 level, break free from their containing funnel, and three bodies are thus liberated on the E4 level.

The sphere, Ca70, contains seven groups of ten Anu, Be10, and acts on the E3 and E2 levels as shown in Fig. 56 and under Beryllium.

On the E3 level the two spheres, Ca45, each containing five ovoids, Al.9', set free ten positive and ten negative duads and ten quintets.

On the E2 level the duads become single Anu, and the central Anu from the quintet is also set free, making fifty units in all. The remaining four Anu of the quintet divide into two duads, making 20 duads.

Globe. The central globe breaks up into eight segments on the E4 level. Each segment becomes spherical and contains within it a cigar, Ad6, and a somewhat heart-shaped body, Li4. Fig. 56.

On the E3 level each segment gives eight spheres of six Anu, the cigar behaving as usual, four sextets being positive and four negative. The four Anu within the Li4, which appear as a tetrahedron, remain together on the E3 level. Four positive and four negative quartets are formed.

On the E2 level the Ad6 dissociates into triplets and the Li4 breaks up into duads.

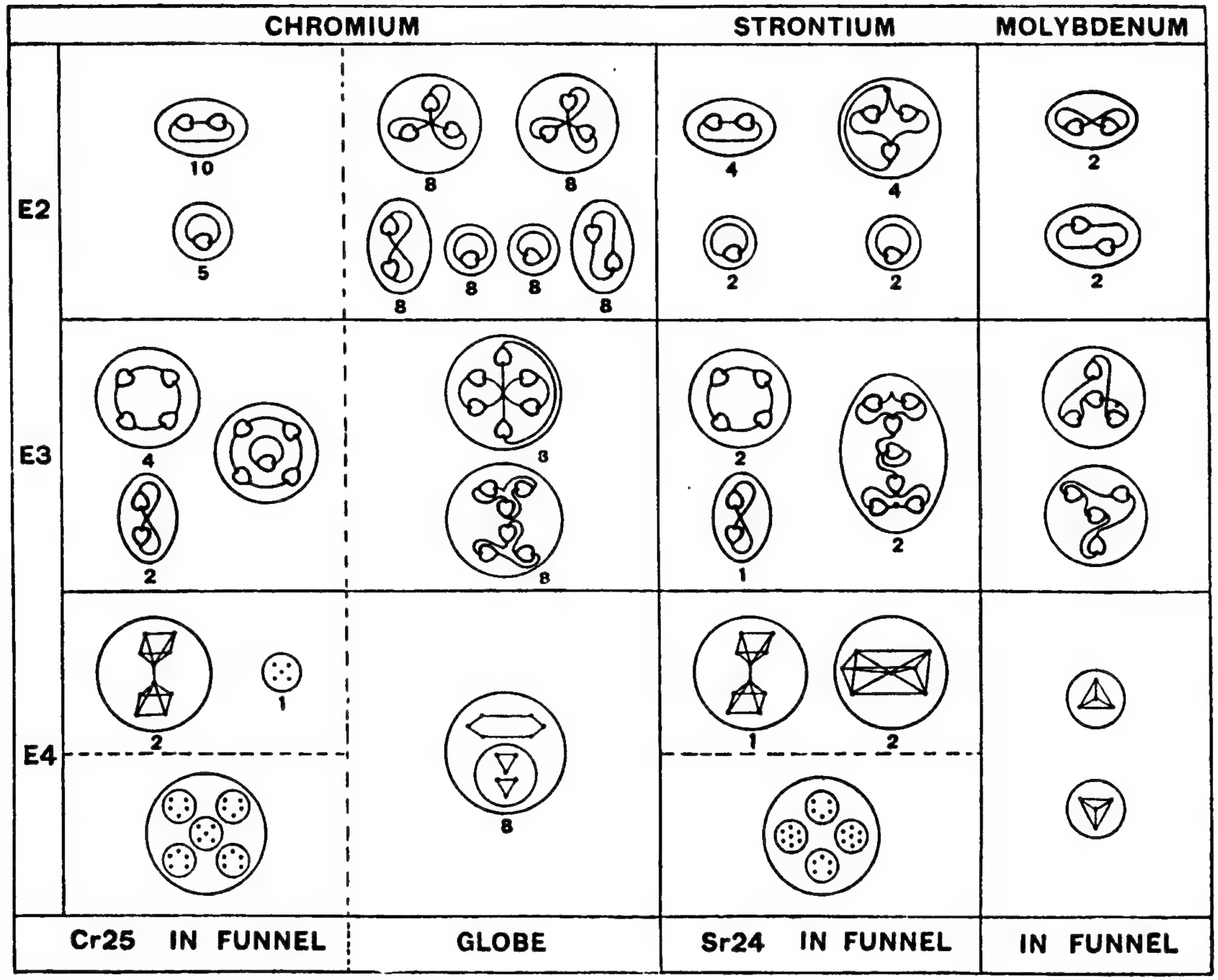


FIG. 57. DISINTEGRATION OF CHROMIUM, STRONTIUM, MOLYBDENUM

DISINTEGRATION OF CHROMIUM

Funnel. Each Chromium funnel contains five spheres. Three of these are in Calcium, two Ca45 and one Ca70. Then there are two Cr25, each containing five quintets. These five spheres are quickly set free on the E4 level. The Ca45's and Ca70's behave as in Calcium, Fig. 56. The Cr25 can be seen on closer examination to contain two pairs of quintets which are mirror images of each other, and a fifth quintet which is of a different type. Fig. 57.

At the second stage of E4 each Cr25 forms two figures of ten Anu, making two joined pyramids as in Copper. The remaining quintet is set free.

On the E3 level each figure of ten Anu gives a duad and two quartets in a ring. The remaining quintet makes a ring with the fifth Anu in the centre.

On the E2 level 10 duads and 5 single Anu are set free from the Cr25.

Central globe. In the central globe each segment is first set free, making 8 spheres on the E4 level. Each sphere contains Ad6 and a pair of triangles as in Hydrogen.

On the E3 level these triangles revolve round each other, while the Ad6 acts as usual.

On the E2 level the triangles break up into two duads and two units, while each Ad6 gives 2 triads.

DISINTEGRATION OF STRONTIUM

Funnels. The Strontium funnel contains eight spheres, six as in Calcium, four Ca45 and two Ca70, and two Sr24. All these are liberated in the first stage on the E4 level. The Ca45's and Ca70's behave as in Calcium. At the second stage each Sr24 forms three groups. One of these is a group of ten Anu with two pyramids with apices joined, as in Chromium, and there are two groups of seven Anu, I.7. Fig. 57.

All these disintegrate as shown, either under Calcium or Strontium. Figs. 56 and 57. On the E4 level the joined pyramids give two quartets and a duad, and the I.7 gives a group of seven Anu as in Iodine. On the E2 level the joined pyramids give 4 duads and 2 units as in Chromium, and each seven gives two triads and a unit. There is really nothing new in Strontium, only repetitions of forms already studied.

DISINTEGRATION OF MOLYBDENUM

Funnels. The funnels contain 8 spheres. The first six of these are as in Strontium, while the last two are Mo46. In this Mo46 occur two additional groups of four Anu arranged in the form of a tetrahedron; they occur in pairs as object and image. Fig. 57.

On the E3 level the tetrahedrons give quartets, and on the E2 level these tetrahedrons each give two duads.

Fig. 58 shows the Tetrahedron Group A in a condensed form, from which the relationships in this group can be studied.

TETRAHEDRON GROUP A

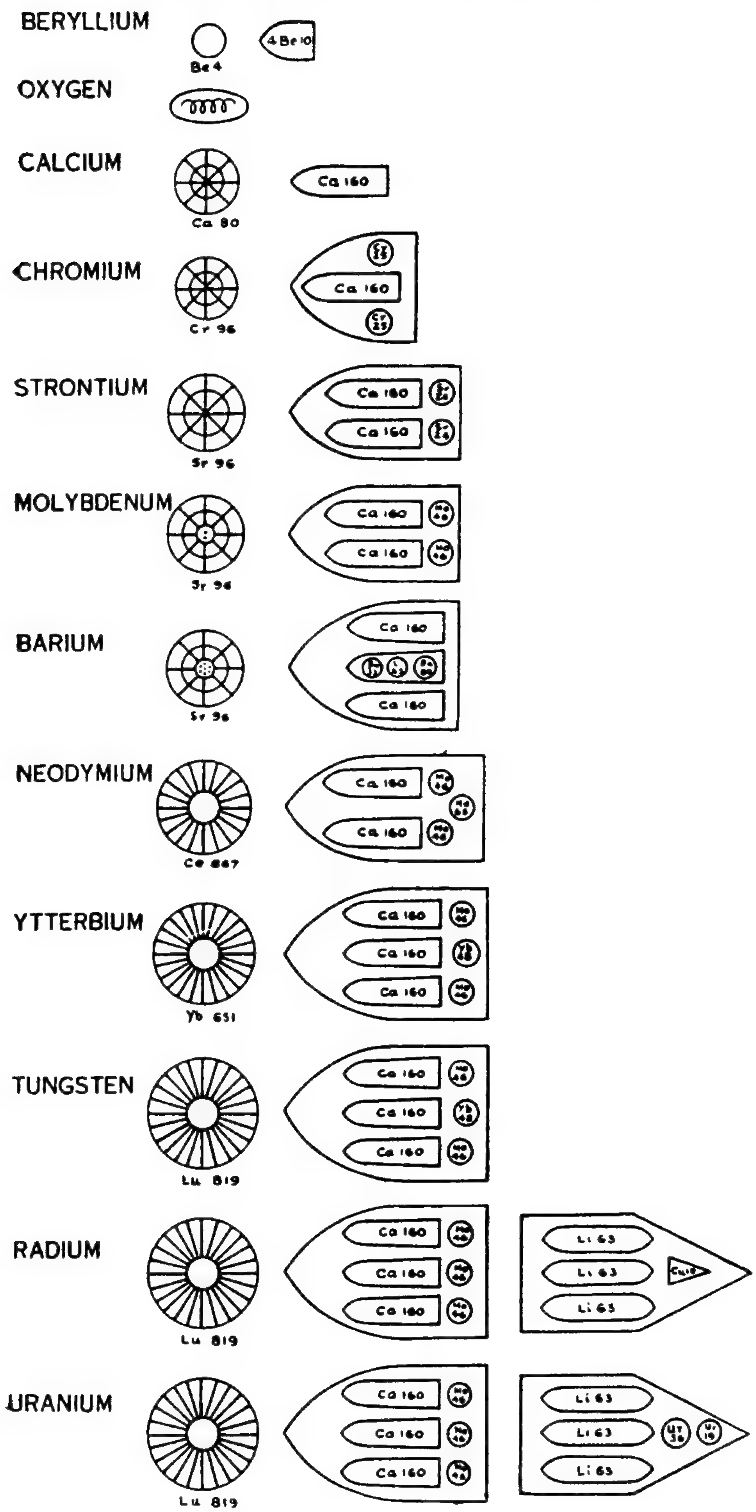
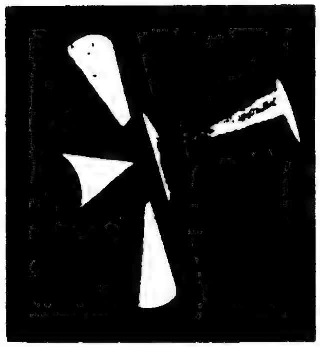


FIG. 58. THE TETRAHEDRON GROUP A

TETRAHEDRON GROUP B



MAGNESIUM

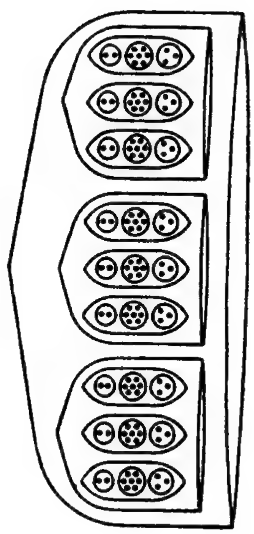


FIG. 59. A TETRAHEDRON, MAGNESIUM

CHAPTER VI

THE TETRAHEDRON GROUP B

THESE ten elements occur on the right hand swing of the pendulum, on the outgoing and on the return swing. They are tetrahedrons in form, and their characteristic valence is four, although some of them are found to develop a higher valence of six. Fig. 59.

Although their fundamental form is the same as that of the Tetrahedron Group A, yet we find a distinctly different type ot arrangement of the Anu in the funnels.

The same plan of four funnels opening on the faces of a tetrahedron is found in all these elements, but Magnesium and Sulphur have no central globe, and in Cadmium and Tellurium the globe becomes a cross.

ATOMIC NO.	ANU	ELEMENT	CENTRE	4 FUNNELS	4 SPIKES
12	432	Magnesium		4 [3 (3Mg12)]	
16	576	Sulphur		4 [3 (3S16)]	
30	1,170	Zinc	Zn18	4 [3 (3S16)]	4 [4Zn20+3Zn18' +Cu10]
34	1,422	Selenium	Zn18	4 [3 (3Se10+3Se10+3N2) +Se153)]	
48	2,016	Cadmium	Cd48	4 [3 (3Se10+3Zn18'+4Zn20)]	
52	2,223	Tellurium	(Cd48+3) (Te51)	4 [3 (3Se10+3Te21+4Te22)]	
63	2,843	Europium	Eu59	4 [3 (3Se10+3Eu26+4Eu31)]	
67	3,004	Holmium	Ho220	4 [3 (3Se10+3Eu26+4Eu31)]	
80	3,576	Mercury	Au864	4 [3 (3Se10+3Cl.19+4Te22) +Se153]	
84	3,789	Polonium	Po405	4 [3 (3Po17+3Po33+4Po33')]	

ATOMIC NO. 12.

MAGNESIUM

This element introduces us to a new arrangement of the internal structure of the funnels. Fig. 59.

Central globe. Magnesium is exceptional in having no central globe at all.

Funnels. Each funnel contains three segments of three ovoids. Each group of three ovoids forms a ring. The ovoids are all similar and consist of three small spheres of two, seven and three Anu respectively.

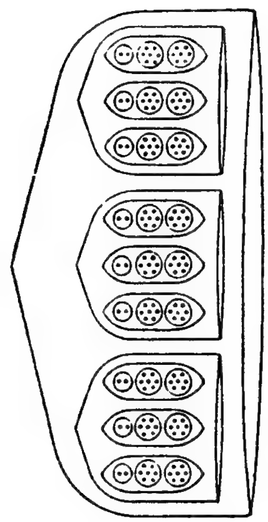
Magnesium = 4 [3 (3Mg12)]

4 funnels of 108 Anu = 432 Anu

Total = 432 Anu

Number weight $\frac{432}{18} = 24.00$

SULPHUR



ZINC

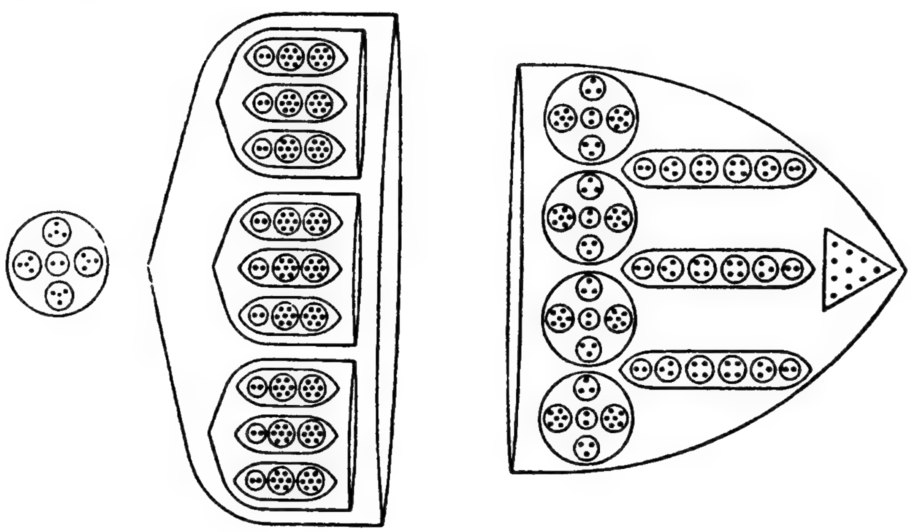


FIG. 60. SULPHUR, ZINC

ATOMIC NO. 16.

SULPHUR

Central globe. Sulphur, like Magnesium, has no central globe.

Funnels. The funnels of Sulphur are very similar to those of Magnesium, having three segments of three ovoids. The ovoids consist of three small spheres, a duad, N2, and two septets, I.7, making S16. Thus 36 extra Anu are slipped into the funnels. Fig. 60.

Sulphur = 4 [3 (3S16)]

4 funnels of 144 Anu	=	576	Anu
Total	=	576	Anu

$$\text{Number weight } \frac{576}{18} = 32.00$$

ATOMIC NO. 30.

ZINC

Zinc contains a globe and four spikes in addition to the four funnels. Funnels and spikes alike radiate from a simple globe. Fig. 60.

Central globe. The globe is made up of one N2 and four Li4, making Zn18. These five contained spheres are arranged cross-wise, preparing for the fully developed cross of Cadmium. One end of the cross touches the bottom of each funnel.

Funnels. The funnels are identical with those of Sulphur, though they are more compressed.

Spikes. The extra weight is mainly made up by the use of spikes, as was sometimes done in the previous group. The spikes show the cone of ten Anu, met with in other elements, and three very regular pillars, each with six spheres containing two, three, four, four three and two Anu respectively. The four supporting spheres, Zn20, are on the model of the central globe but contain two more Anu.

Zinc = Zn18+4 [3 (3S16)]+[4 Zn20+3 Zn18'+Cu10]

Central globe	=	18	Anu
4 funnels of 144 Anu	=	576	,,
4 spikes of 144 Anu	=	576	,,
Total	=	1170	Anu

$$\text{Number weight } \frac{1170}{18} = 65.00$$

SELENIUM

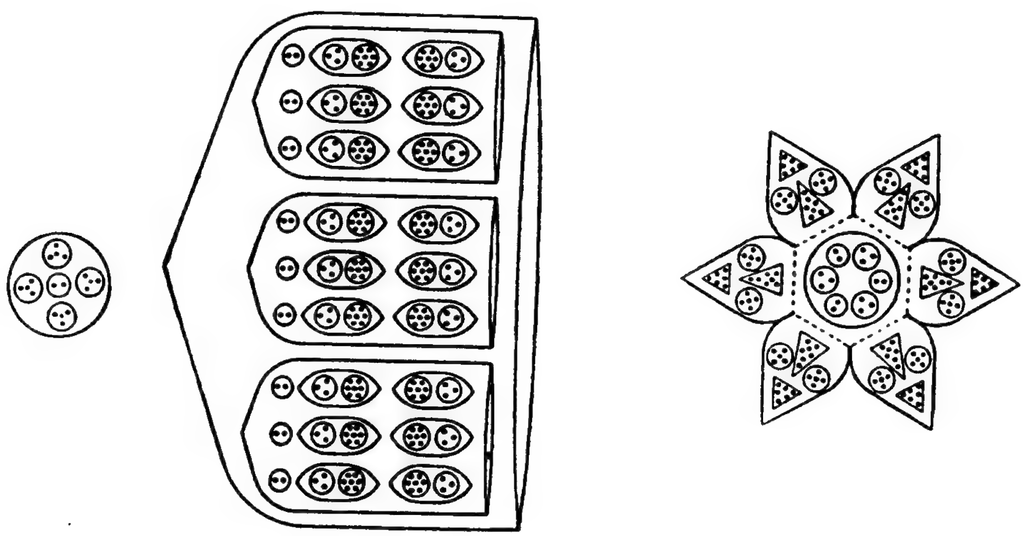


FIG. 61. SELENIUM

ATOMIC NO. 34.

SELENIUM

Selenium is distinguished by the peculiarity of an exquisite quivering star floating across the mouth of each funnel and dancing violently when a ray of light falls upon it. It is known that the conductivity of Selenium varies with the intensity of the light falling upon it, and it may be that the star is in some way connected with its conductivity. Fig. 61.

Central globe. The central globe is the same as that of Zinc, Zn18.

Funnels. The bodies in the funnels resemble those in Magnesium, but a reversed image of the top one is interposed between this and the small duad, and each pair has its own enclosure. There are three segments in the funnel as usual.

The Star. It will be seen that the star is a very complicated body, having six points radiating from a central sphere. In each point the spheres of five Anu revolve around the cone of seven. Each star contains 153 Anu, Se153.

Selenium = Zn18+4 [3 (3Se10+3Se10+3N2)+Se153]

Central globe	=	18	Anu
4 funnels of 198 Anu	=	792	"
4 stars of 153 Anu	=	612	"
Total	=	1422	Anu

$$\text{Number weight } \frac{1422}{18} = 79.00$$

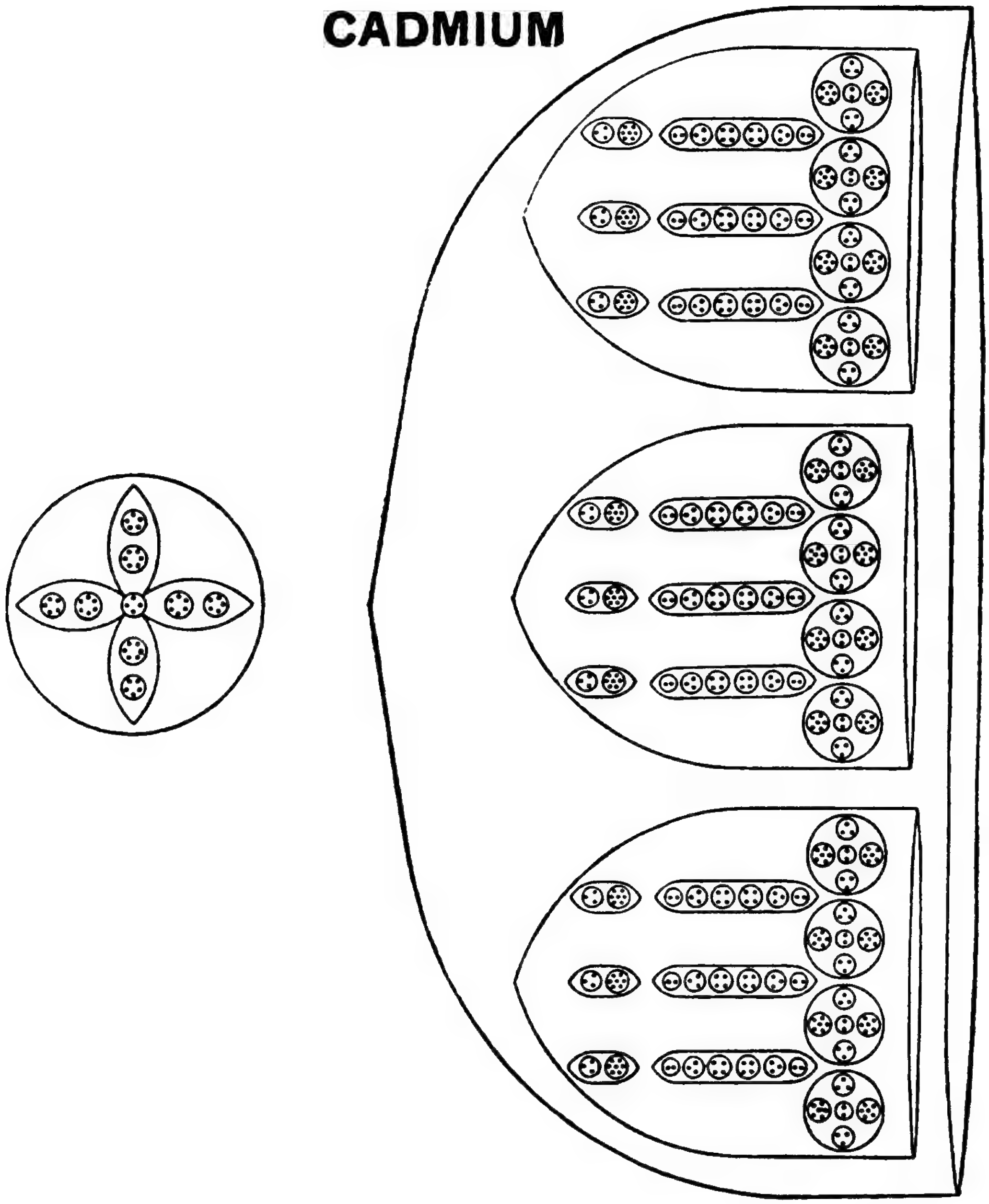


FIG. 62. CADMIUM

ATOMIC NO. 48.

CADMIUM

Globe. The central globe is a new form, though prefigured in the central globe of Zinc. It consists of nine small spheres arranged so as to form a cross, Cd48. Fig. 62.

Funnels. In Cadmium there are no spikes, but the three segments of the funnels are much more complex than in Zinc.

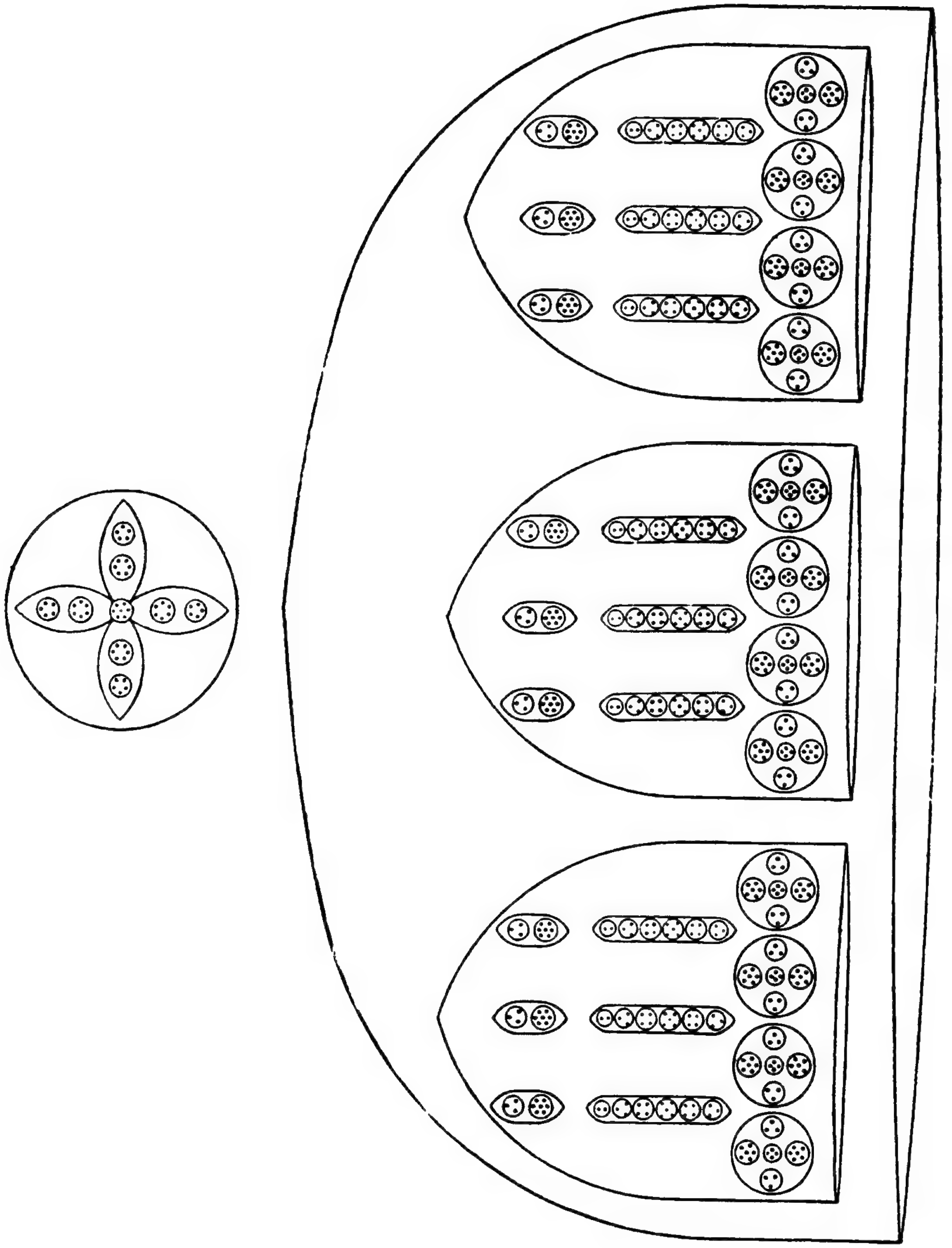
Each of the three segments contains four spheres Zn20 and three pillars Zn18'. The pillars are similar to those in the zinc spikes. Below each of the pillars is an ovoid with ten Anu. This is the Se10 group found in the funnel of Selenium and which occurs frequently. Each segment of the funnel contains 164 Anu, hence the whole funnel contains 492 Anu.

Cadmium = Cd48+4 [3 (3Se10+3Zn18' + 3Zn20)]

Central globe	=	48	Anu
4 funnels of 492 Anu	=	1968	„
Total	=	2016	Anu

Number weight $\frac{2016}{18}$ = 112.00

TELLURIUM



ATOMIC NO. 52.

TELLURIUM

Tellurium, Fig. 63, closely resembles Cadmium.

Globe. The central cross which forms the globe differs from that of Cadmium in having a group of seven Anu at the centre instead of one of four. Cd48+3 = Te51.

Funnels. Tellurium has three cylindrical segments making up its funnel. The contained bodies in the pillars run two, three, four, five, four and three, making Te21. A quartet replaces a duad in the globes, making Te22. Below each pillar is a Se10 group. Each segment has 181 Anu.

Tellurium = (Cd48+3)+4 [3 (3Se10+3 Te21+4 Te22)]

Central globe	=	51	Anu
4 funnels of 543 Anu	=	2172	"
Total	=	2223	Anu

$$\text{Number weight } \frac{2223}{18} = 123.50$$

Note: The number weight for Tellurium is lower than that usually accepted by science. If there were another variety in which the pillars were symmetrical, that is if another group of two Anu were added at the top of each pillar, the total Anu in this variety would be 2,295 giving a number weight of 127.50.

EUROPIUM

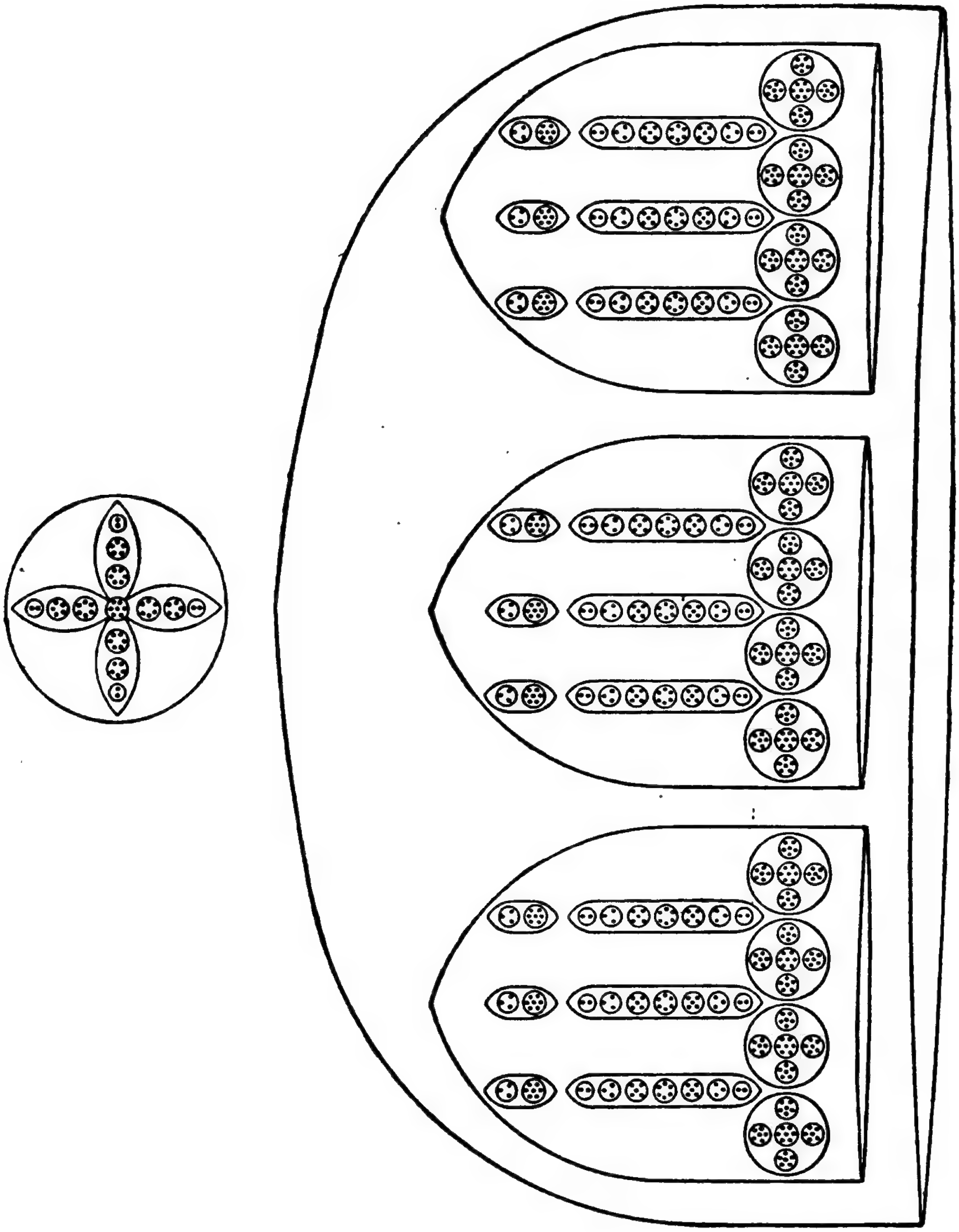


FIG. 64. . EUROPIUM

ATOMIC NO. 63.

EUROPIUM

This element resembles Tellurium in its arrangement. Fig. 64.

Central globe. The central globe of Europium is similar to that of Tellurium except that a tiny sphere of two Anu is added to each arm of the cross. Thus eight Anu are added to the globe of Tellurium, making Eu59.

Funnels. The funnels each consist of three identical segments, each of 232 Anu. Each segment contains, first the three Se10 as in previous elements, then three pillars each of 26 Anu, Eu26, and above these, four spheres, each Eu31. The total for one funnel is 696 Anu.

Europium = Eu59+4 [3 (3Se10+3Eu26+4Eu31)]

Central globe	=	59	Anu
4 funnels of 696 Anu	=	2784	„
Total	=	2843	Anu

$$\text{Number weight } \frac{2843}{18} = 157.95$$

HOLMIUM

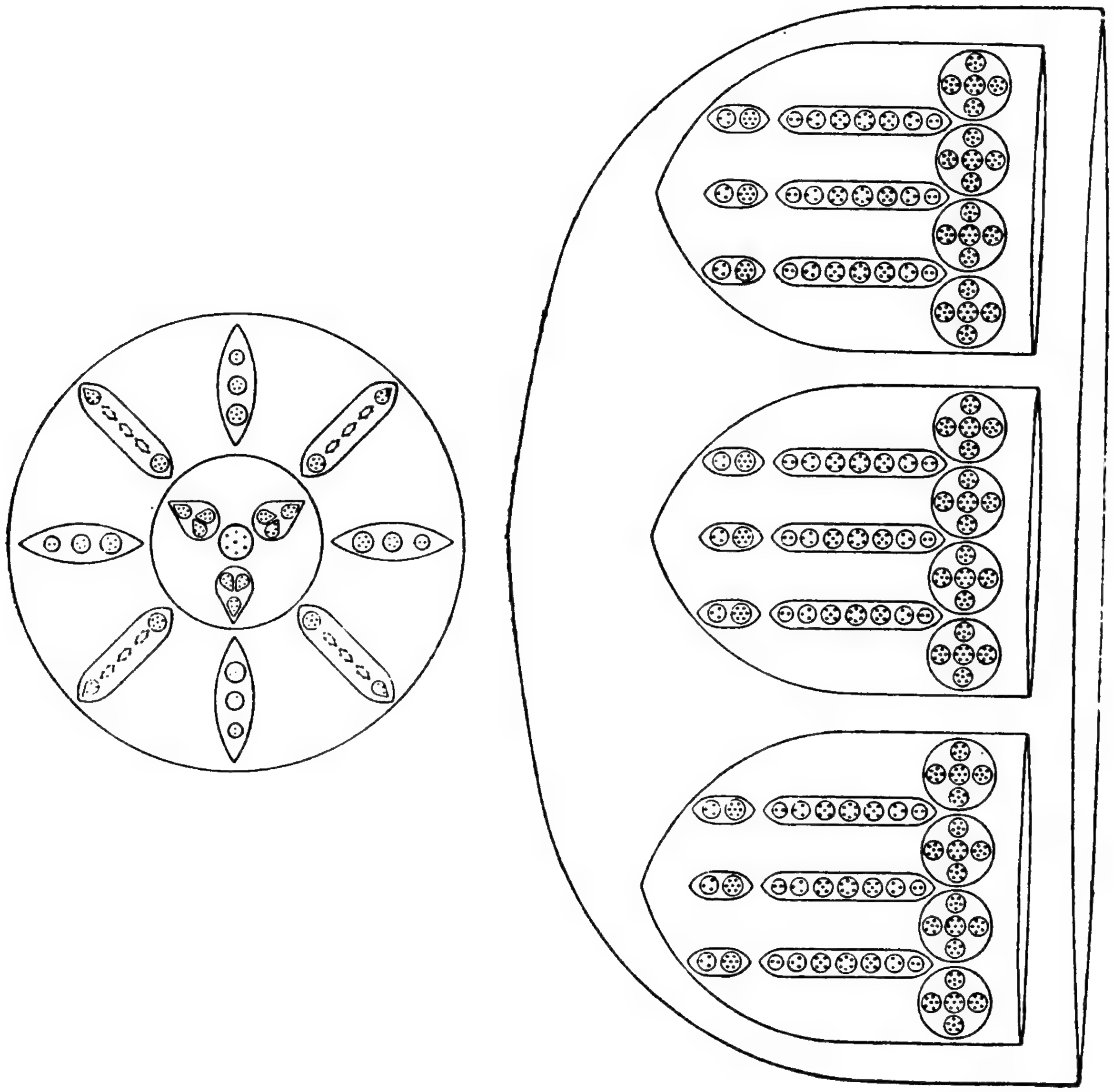


FIG. 65. HOLMIUM

ATOMIC NO. 67.

HOLMIUM

This element is similar to Europium except that its central globe is much more complex. Fig. 65.

Central globe. The grand centre of the globe is made up of a sphere of seven Anu, surrounded by three groups of 15 Anu. The seven central Anu are arranged at the six points of space with one in the centre.

The groups of 15 Anu suggest the rings in Occultum, Oc15.

Outside this sphere there radiate groups of bodies composed of two sets of four similar groups. Each set of four points in a definite direction fixed by the tetrahedron. One set of four points to the four faces and the other set to the four corners. The set that points to the four faces is that which occurs in the central globe of Europium.

In the set which points to the four corners each contains N6, three Ad6 and B5, some of which groups are found in Occultum. The B5 at the end comes to a point as if it were a prong.

When we take the three groups of 3B5 and the remaining groups which make the four pointers to the four corners, it is possible to account for three Occultum atoms except for one Anu. When the three groups and the four pointers were taken out they promptly rearranged themselves as three Occultum atoms. It was found that the missing Anu was that which acted as the grand centre of the whole Holmium atom.

Funnel. The four funnels are exactly as those in Europium. Each funnel has three segments and each segment contains 232 Anu arranged as in Europium.

Holmium = Ho220+4 [3 (3Se10+3Eu26+4 Eu31)]

Central globe	=	220	Anu
4 funnels of 696 Anu	=	2784	"
Total	=	3004	Anu

Number weight $\frac{3004}{18} = 166.9$

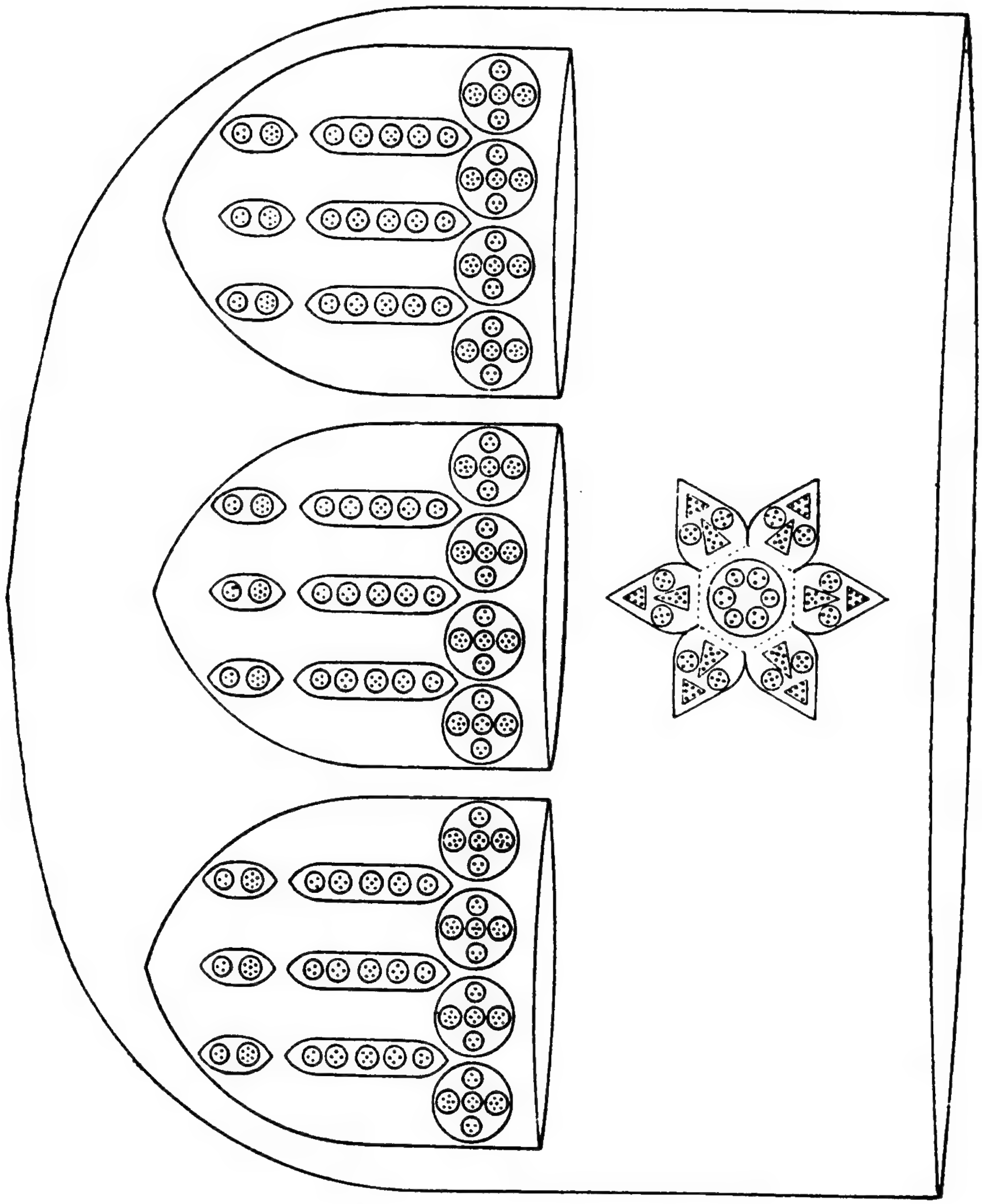


FIG. 66. THE FUNNEL OF MERCURY

ATOMIC NO. 80.

MERCURY

Mercury keeps to the tetrahedral form but adopts a much more complex central globe. Figs. 66, 67.

Here we have an element with a decided individuality of its own. True, its component parts are all borrowed, but the combination of them is unique.

Funnel. Mercury borrows its funnels from Tellurium, though dropping two Anu from each column, and then captures the lovely Selenium star, but turns it into a solid looking and vigorously rotating sphere. The star is no longer flat but has its arms projecting towards the six directions. We may credit what is borrowed from Tellurium and Selenium to the type to which all three belong, but what is taken from Gold must represent the influence of the evolutionary force, since Gold comes just before it on the spiral, though on quite a different line.

The funnels have three segments as in Cadmium. Each segment contains three Se10, three pillars, Cl.19, and four globes Te22. Above the three segments there floats a sphere made of the Selenium star. Each funnel contains three segments+Se153, making 678 Anu.

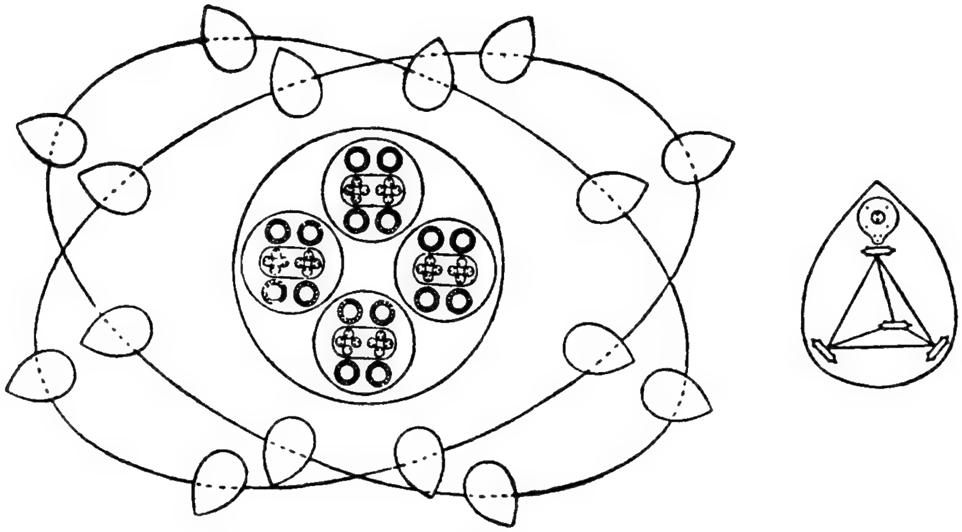


FIG. 67. THE CENTRE OF MERCURY

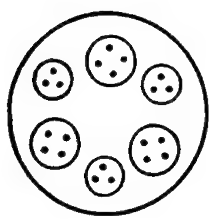


FIG. 68. CENTRE OF THE STAR IN THE FUNNEL OF MERCURY B

The Central Globe. With splendid audacity, Mercury seizes upon the **wonderful** system of 864 Anu which makes the connecting rod in Gold, and uses that as its centre-piece. Fig. 67.

Mercury = Au864+4 [3 (3Se10+3Cl.19+4Te22)+Se153]

Central globe	=	864	Anu
4 funnels of 678 Anu	=	2712	„
Total	=	3576	Anu

$$\text{Number weight } \frac{3576}{18} = 198.66$$

An Isotope of Mercury. Mercury B is also a tetrahedron and closely resembles Mercury, the difference being only the addition of six Anu to each of the four funnels of Mercury. This produces a new element, a solid Mercury. A specimen of this rare form of Mercury exists in an occult museum.

The six extra Anu are added in the centre of the Selenium star in the funnels. Fig. 69.

Mercury B.

Central globe	=	864	Anu
4 funnels of 684 Anu	=	2736	„
Total	=	3600	Anu

$$\text{Number weight } \frac{3600}{18} = 200$$

ATOMIC NO. 84.

POLONIUM

Polonium, though a tetrahedron, is still heavier and more complicated than the earlier members of the group. It is rare and appears to be unstable. Figs. 69, 70.

Central globe. The globe goes back to the pattern of Holmium. It contains a grand centre of a sphere I.7 surrounded by six groups of (3B5) = Ho15. This again is surrounded by eight groups as in Holmium. Four of these are Po42 and four Po35, making a globe of 405 Anu as the centre-piece of Polonium.

Funnel. Each of the funnels has three segments. Each segment contains at the bottom three ovoids Po17, then three pillars Po33 and then four spheres Po33'. These make up 282 Anu. Three segments of 282 make 846 Anu in each funnel.

Polonium = Po405+4 [3 (3Po17+3Po33+4Po33')]

Central globe	=	405	Anu
4 funnels of 846 Anu	=	3384	"
Total	=	3789	Anu

$$\text{Number weight } \frac{3789}{18} = 210.5$$

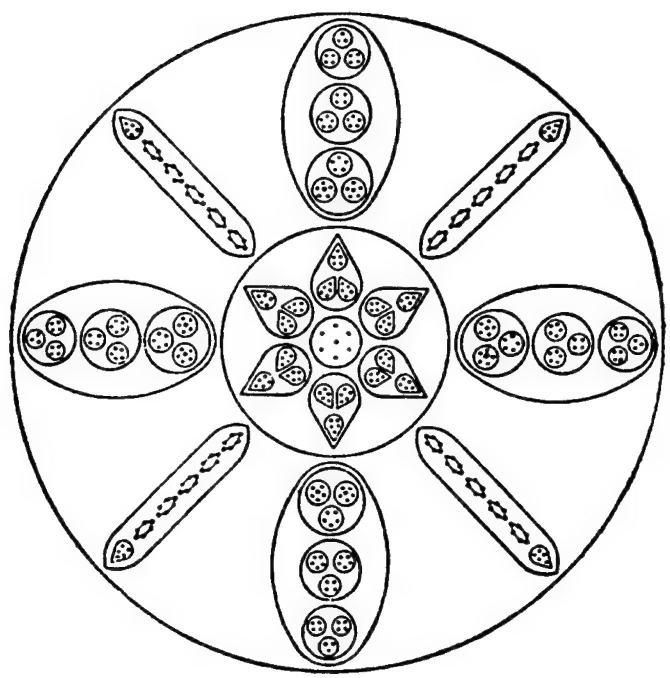


FIG. 69. THE CENTRE OF POLONIUM

POLONIUM

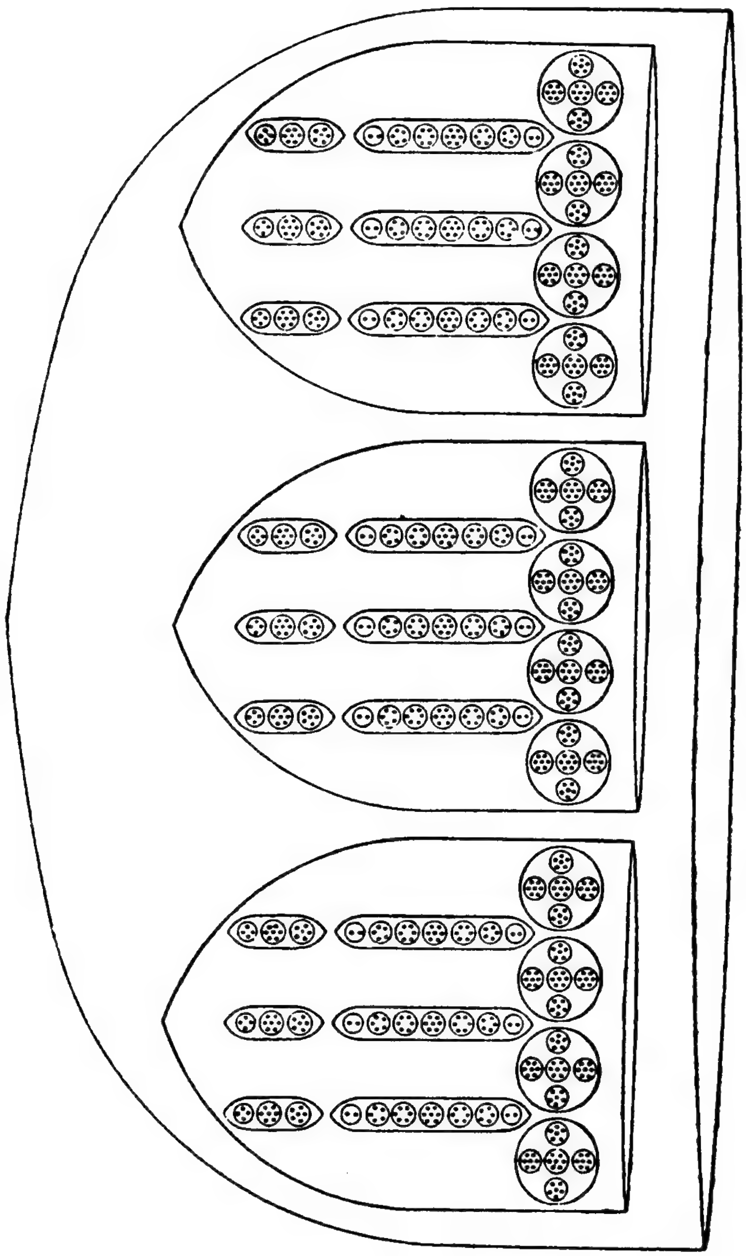


FIG. 70. THE FUNNEL OF POLONIUM

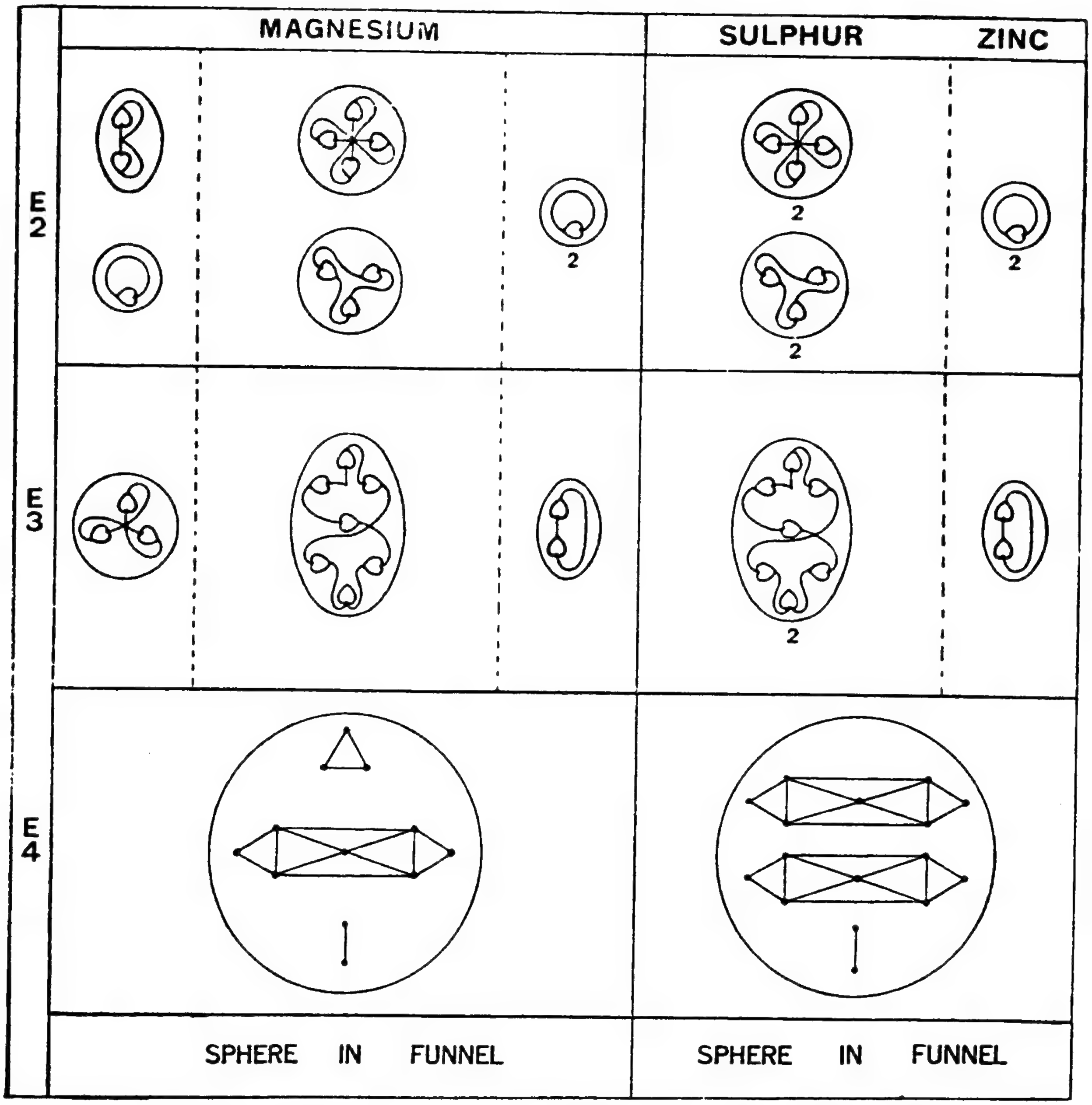


FIG. 71. DISINTEGRATION OF MAGNESIUM, SULPHUR AND ZINC

DISINTEGRATION OF THE TETRAHEDRON GROUP B

DISINTEGRATION OF MAGNESIUM

Funnel. On the E4 level the four funnels are first set free; these then set free the three segments, each segment forming a large sphere. These spheres, however, are not permanent but the three ovoids break loose from the spheres and themselves become spherical. Thus each funnel gives nine spheres. Fig. 71.

On the E3 level the three bodies in the sphere are set free, yielding a triplet, a septet and a duad.

On the E2 level the triplets become a duad and a unit, the septet gives a triplet and a quartet and the duad gives two units.

SULPHUR

This element has the same groups in the funnel as Magnesium, with the substitution of a second septet for the triplet. At the final disintegration on the E4 level we find, therefore, nine spheres from each funnel, each sphere containing two septets and a duad.

On the E3 and E2 levels these disintegrate as in Fig. 71.

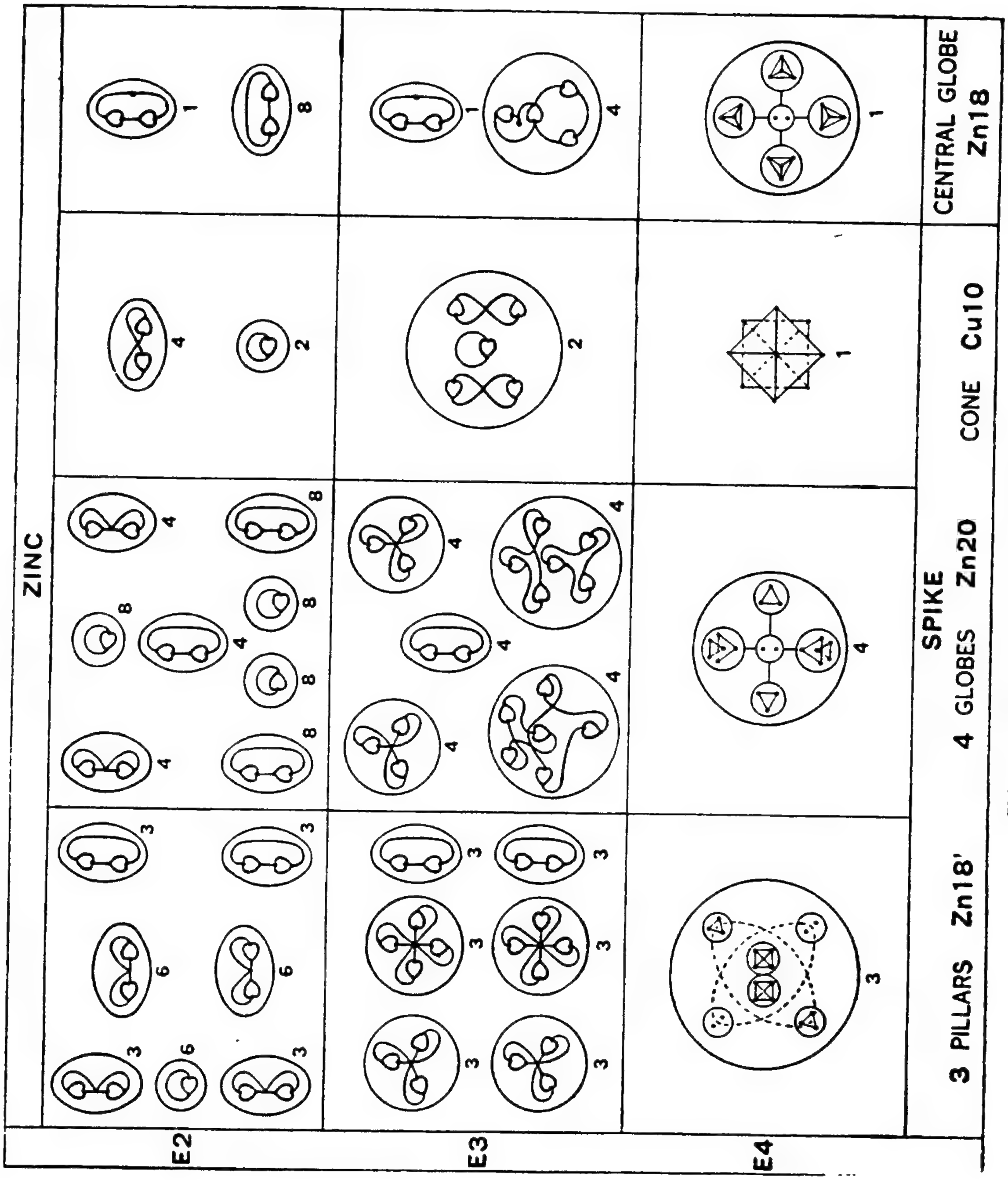


FIG. 72. DISINTEGRATION OF ZINC

DISINTEGRATION OF ZINC

On the E4 level the four funnels, the four spikes and the central globe are first set free. Figs. 71, 72.

The funnels are identical with those of Sulphur and behave in the same way on disintegration.

The spikes immediately release their contents, each spike giving eight bodies, the three pillars Zn18', the four globes Zn20 and the cone Cu10. The pillars Zn18' become globes. Each globe has six bodies revolving in it in a rather peculiar way. The quartets turn round each other in the middle; the triplets revolve round them in a slanting ellipse; the duads do the same on an ellipse slanting at an angle to the first, somewhat as in gold. The globes Zn20 behave as a cross on the E4 level.

The triangular arrangement at the top of the spike is the same as the cone in Copper, Cu10.

The further disintegration of these bodies is shown in Fig. 72.

The central globe. Zn18 is set free on the E4 level and acts as a cross. The cross is a favorite design in these groups.

On the E3 level it forms four quartets and a duad.

On the E2 level it gives 9 duads.

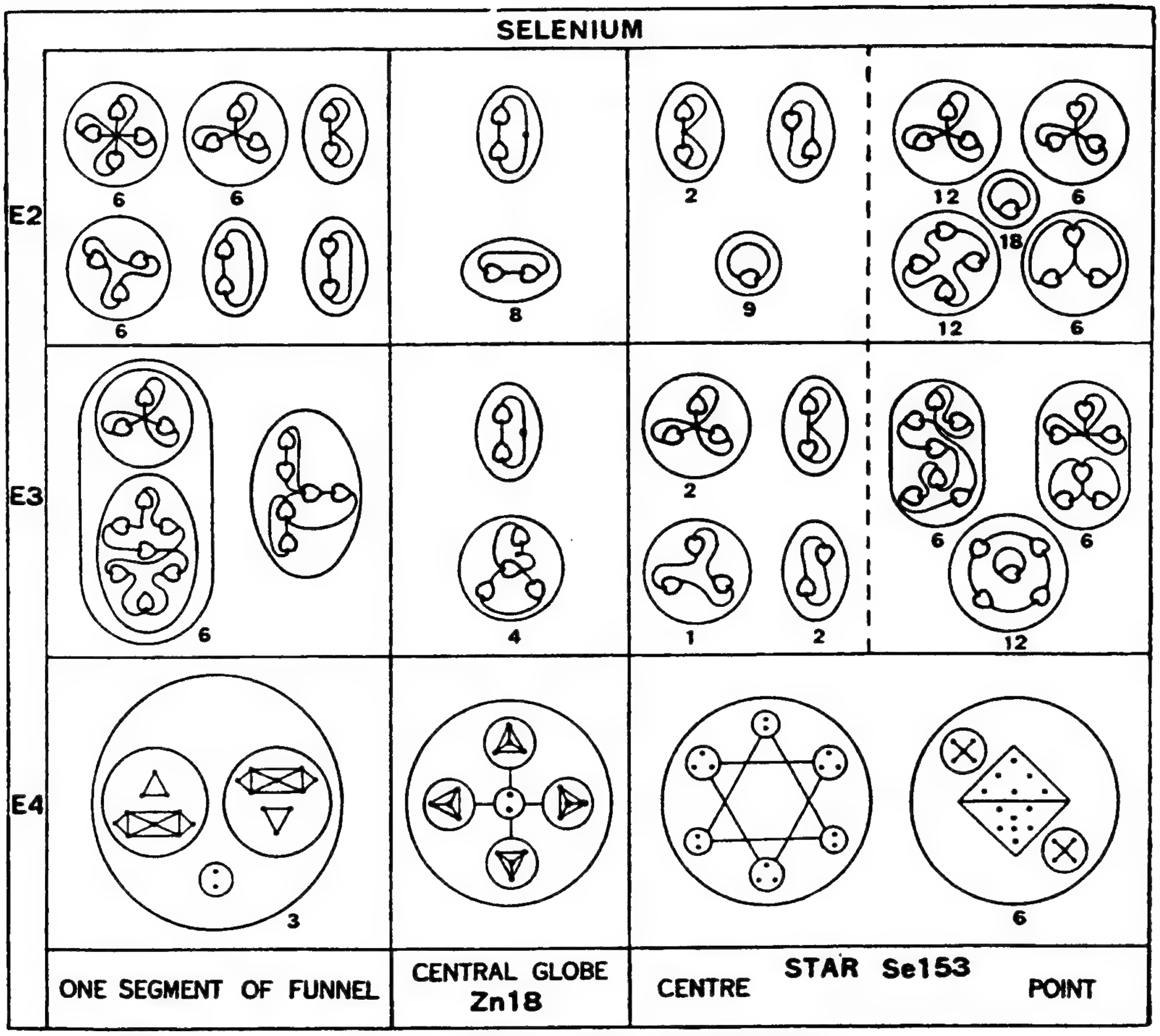


FIG. 73. DISINTEGRATION OF SELENIUM

DISINTEGRATION OF SELENIUM

Funnels. Each funnel on being liberated sets free three segments on the E4 level. Each segment then liberates three spheres, so that we have nine spheres from each funnel. Fig. 73.

On the E3 level six decads are formed and one hexad. The body with six Anu is formed by combination of three duads.

On the E2 level the decads give twelve triplets and six quartets. The hexad give three duads.

The Star. The star is first liberated as a unit on the E4 level but it soon shoots off into seven bodies. The central portion keeps together and the six points become spheres, within which the two cones, base to base, whirl in the centre and the globes of five Anu circle round them.

On the E3 level all the thirty bodies contained in the star separate from one another, forming twelve quintets, six heptads, six sextets, three triplets and three duads.

The further disintegration is shown in Fig. 73.

The central globe is similar to that in Zinc, Zn18. This is liberated on the E4 level and is as shown in Fig. 73. On the E3 level it forms four quartets and a duad. On the E2 level it yields nine duads.

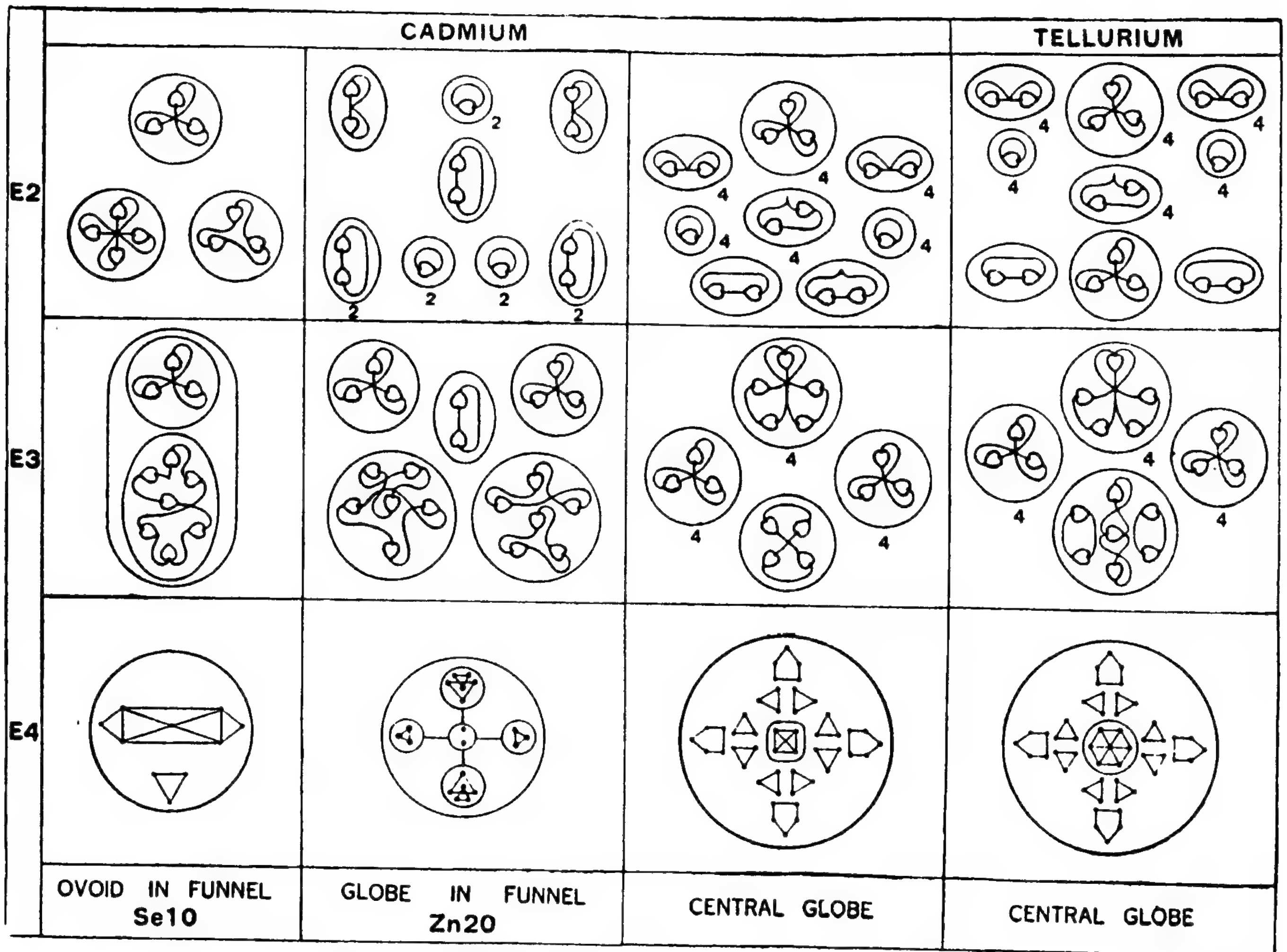


FIG 74 DISINTEGRATION OF CADMIUM AND TELLURIUM

CADMIUM

Cadmium follows closely on the lines of Zinc. Fig. 74.

Funnels. The globes in the funnels, Zn20, are those of Zinc, and the pillars are the Zn18' of the Zinc spike.

On the E4 level the ovoids Se10 become spheres, the contained bodies revolving within them. The heptad whirls on a diameter of the sphere, cutting it in half as it were, and the triad whirls round it at right angles.

On the E3 level we have a decad, Se10, and on the E2 level two triads and a quartet.

Central globe. The cross becomes a sphere, but the cruciform type is maintained within it by the relative positions of the contained spheres in their revolution. The subsequent stages are shown in Fig. 74.

TELLURIUM

Tellurium very closely resembles Cadmium.

Funnels. The pillars are the same as the rod of Chlorine, Cl.19, with a duad added at the base. The ovoid Se10 is the same as in Selenium and Cadmium, and follows the same course in breaking up. In the globes in the funnels a group of four is substituted for the group of two in Zinc.

Central globe. The cross in Tellurium is identical with that in Cadmium, except that the centre contains seven Anu instead of four. This disintegrates as in Fig. 74.

Fig. 75 shows the Tetrahedron Group B in a condensed form, from which the relations between the elements in the group may be studied.

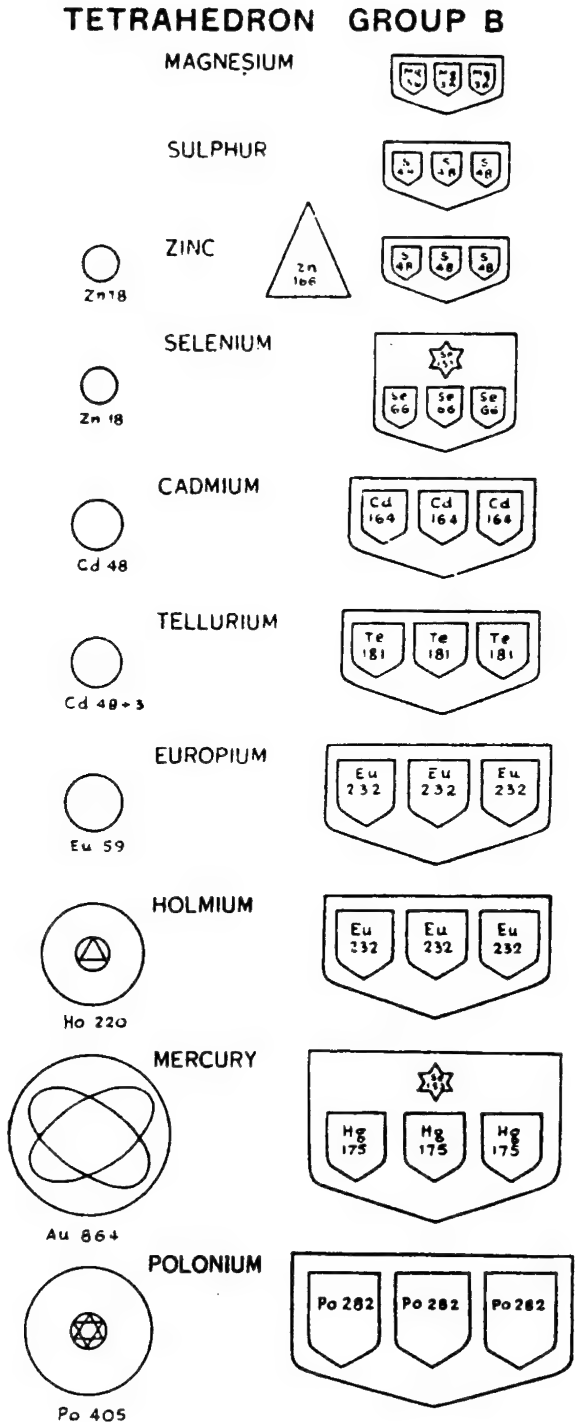


FIG. 75. THE TETRAHEDRON GROUP B

FIG. 76 TYPES OF THE CUBE GROUP

CHAPTER VII

THE CUBE GROUP A

ALL the members of this group, with the exception of Nitrogen, have the external form of a cube. Fig. 76. They occur on the left hand swing of the pendulum. Their characteristic valence is three, but higher valencies are developed. They all have six funnels opening on the six faces of a cube, and in two cases there are also spikes pointing to the eight corners of the cube. At first sight it would appear that Nitrogen should not be placed in this group but, as we shall see, the constituents of Nitrogen occur constantly in the components making up the funnels of the elements in this group.

ATOMIC NO.	ANU	ELEMENT	CENTRE	6 FUNNELS
5	200	Boron	(4 B5)	6 [4 (2H3) + Ad6]
7	261	Nitrogen	(N110 + N63 + 2N24 + 2N20)	
21	792	Scandium	(4 B5 + Be4)	3 [N110 + 4 (2H3) + Ad6] 3 [N63 + 2N24 + B5]
23	918	Vanadium	(4 B5 + L7)	3 [N110 + N20 + 4 (2H3) + Ad6] 3 [N63 + 2N24 + N20 + N6]
39	1,606	Yttrium	(Ad24 + Yt16)	6 [N63 + N110 + Yt44 + (4Yt8 + 2Ad6)]
41	1,719	Niobium	(2Ad24 + N9)	6 [N63 + N110 + Yt44 + Nb60]
57	2,482	Lanthanum	(Ne120 + 7)	3 [N63 + N110 + Mo46 + Ca70 + Yt44 + Nb60] 3 [N63 + N110 + Ca45 + Ca70 + Yt44 + Nb60]
59	2,527	Praeseodymium	(Ce27 + 30 Ce32) = Ce667	6 [Pr33 + N63 + N110 + Yt44 + Nb60]
71	3,171	Lutecium	(Ce27 + 24Ba33) = Lu819	6 [N63 + N110 + Lu53 + Ca70 + Lu36 + Nb60]
73	3,279	Tantalum	Lu819	6 [N63 + N110 + Ta63 + Ca70 + Yt44 + Nb60]
89	4,140	Actinium	Lu819	3 [N63 + N110 + Mo46 + Ca160 + Yt44 + Nb60] 3 [Zr212 + Sb128 + Ac116] + 8 Li63
91	4,227	Proto-Actinium	Lu819	3 [N63 + N110 + Mo46 + Ca160 + Yt44 + Nb60] 3 [Zr212 + Sb128 + Ac116 + Pa29] + 8 Li63

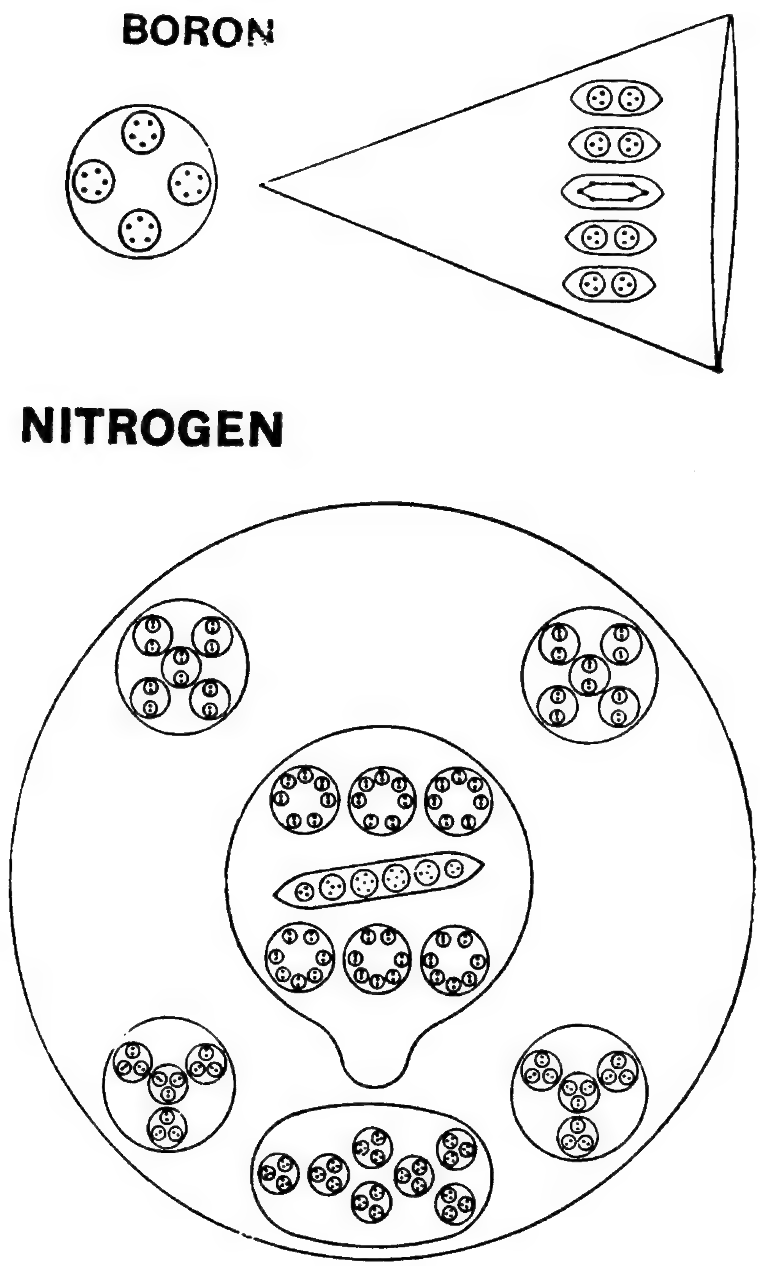


FIG. 77. BORON. NITROGEN

ATOMIC NO. 5.

BORON

In Boron we have the simplest form of the cube. Fig. 77. It is as simple in relation to the other members of its group as is Beryllium.

The Central globe has four spheres of five Anu, 4B5.

The funnels contain five bodies also, four ovoids each of 2H3, and one Ad6. All six funnels are alike.

Boron = 4B5+6 [4 (2H3)+Ad6]

Central globe	=	20	Anu
6 funnels each of 30 Anu	=	180	,,
Total	=	200	Anu

Number weight $\frac{200}{18} = 11.11$

ATOMIC NO 7

NITROGEN

Nitrogen does not assume the cubic form of its relatives, but is shaped like a sphere. Fig. 77. The balloon-shaped body, N110, floats in the middle of the sphere. This N110 contains six smaller spheres in two horizontal rows, and a long ovoid in the middle. The balloon-shaped body is positive and is drawn down towards the negative body, N63, below it. N63 contains seven spheres, each of which has nine Anu within it, arranged as three triads. In addition to N110 and N63 there are four more spheres in Nitrogen. Two of these, N20, containing five smaller globes of four Anu, are positive and two, N24, containing four globes of six Anu, are negative.

What is there in Nitrogen which renders it so inert as conveniently to dilute the fiery Oxygen and make it breatheable, while it is so extraordinarily active in some of its compounds that it enters into the most powerful explosives? Some chemist of the future perhaps will find the secret in the arrangement of its constituent parts which we are able only to describe.

Nitrogen = N110+N63+2N24+2N20

Balloon	=	110	Anu
Oval	=	63	,,
2N24	=	48	,,
2N20	=	40	,,
Total	=	261	Anu

Number weight $\frac{261}{18} = 14.50$

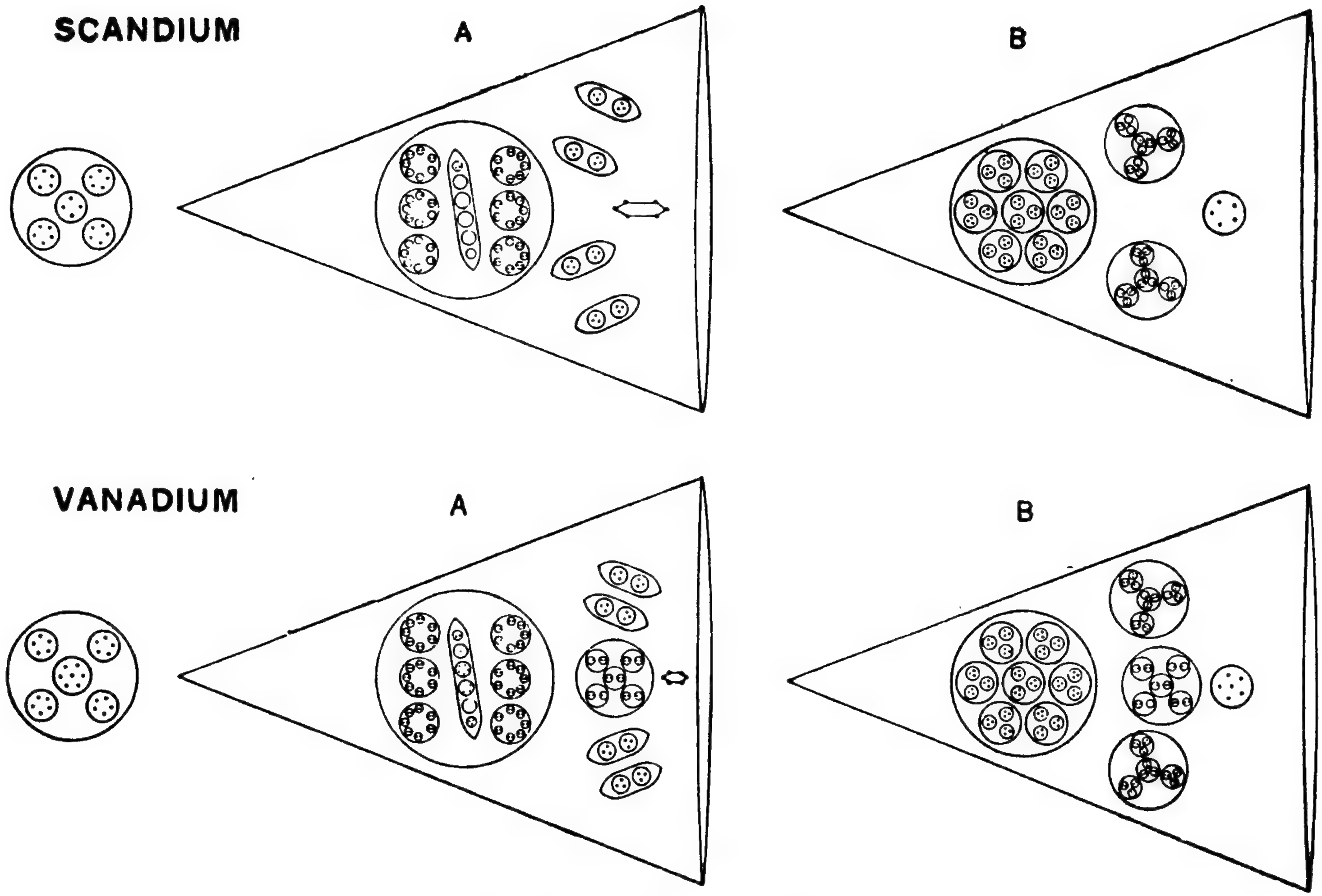


FIG. 78. SCANDIUM. VANADIUM

ATOMIC NO. 21.

SCANDIUM

In Scandium for the first time we meet funnels of two different types in the same atom. The three funnels of type A appear to be positive and those of type B negative, but this must be stated with reserve. Fig. 78.

Central globe. The central globe repeats that of Boron, with an additional sphere of four Anu in the centre.

Funnels. In the A type the Boron funnel is reproduced, the Ad6 having risen above its companion ovoids; but the most important matter to note in respect to this funnel is the introduction of the body N110. This body was observed by us first in Nitrogen, in 1895, and we gave it the name of the "nitrogen balloon," for in Nitrogen it takes the balloon form, which it also often assumes in other gaseous elements. Here it appears as a sphere, the form it always assumes on the E4 level. It will be observed that this N110 appears in every member of this group except Boron.

The B type of funnel runs largely to triads. It contains N63, which has not only a triadic arrangement of spheres within its contained globes, but each sphere has also a triplet of Anu. The funnel also contains two N24 and is completed by a sphere of five Anu at the top of the funnel.

Scandium = (4B5+Be4) +3 [N110+4 (2H3) +Ad6] +3 [N63+2N24+B5]

Central globe	=	24	Anu
3 funnels A of 140 Anu	=	420	„
3 funnels B of 116 Anu	=	348	„
Total	=	792	Anu

Number weight $\frac{792}{18} = 44.00$

ATOMIC NO. 23.

VANADIUM

Vanadium closely follows Scandium. Fig. 78.

The central globe has seven Anu, I.7, in its central body, instead of four as in Scandium.

Funnels. The funnels of type A only differ from those of Scandium by having a globe, N20, inserted in the ring of four ovoids.

The B type funnels have a globe containing six Anu instead of five at the top, and slip in a third globe containing twenty Anu, N20, between the two N24 of Scandium.

In this way Vanadium succeeds in overtopping Scandium by 126 Anu.

Vanadium = (I.7+4B5)+3 [N110+N20+4 (2H3)+Ad6] +3 [N63+2N24+N20+N6]

Central globe	=	27	Anu
3 funnels A of 160 Anu	=	480	„
3 funnels B of 137 Anu	=	411	„
Total	=	918	Anu

Number weig $\frac{918}{18} = 51.00$

YTTRIUM

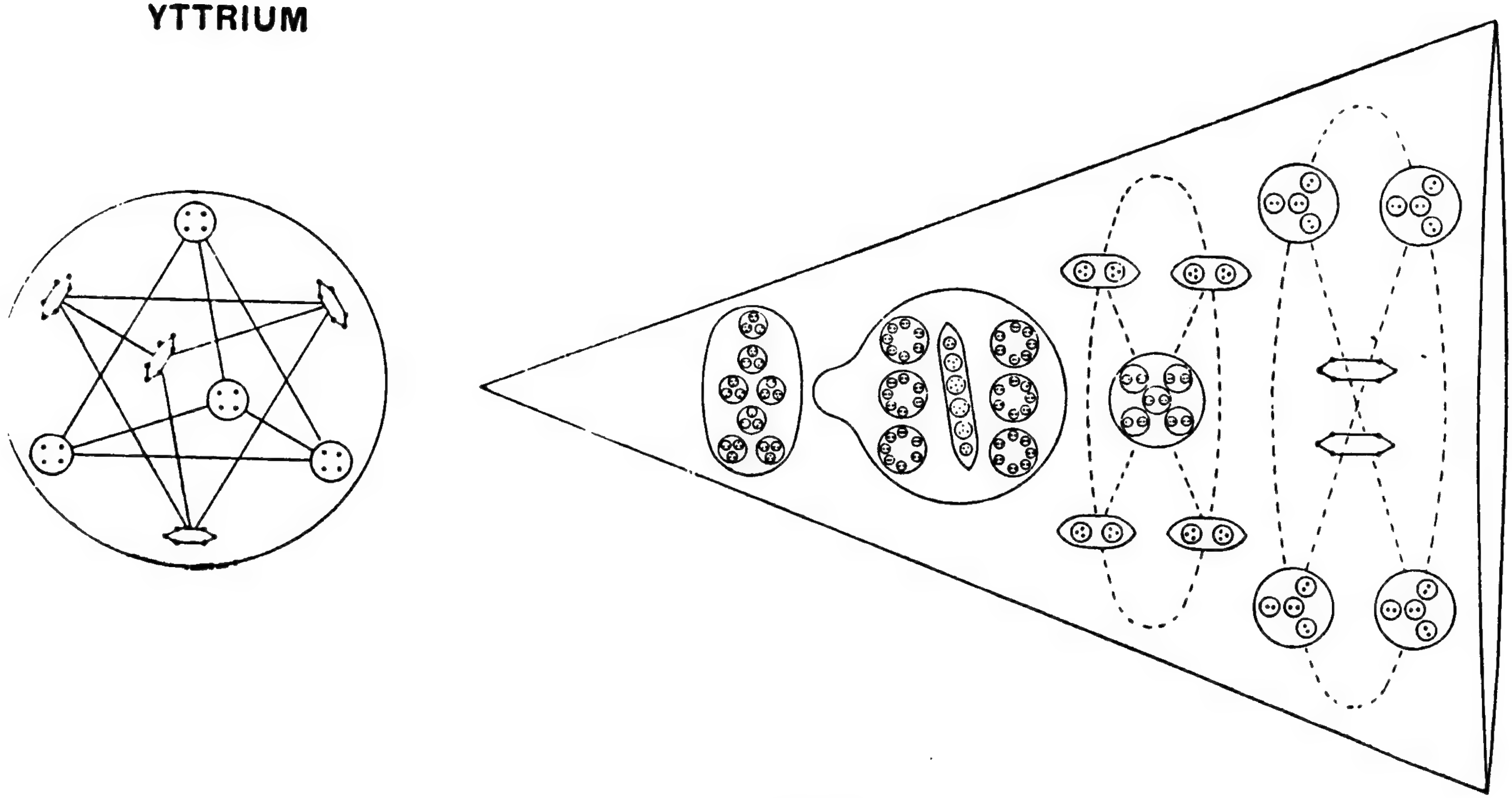


FIG. 79. YTTRIUM

ATOMIC NO. 39.

YTTRIUM

The *central globe* presents us with two tetrahedrons, recalling one of the combinations in Adyarium and in Gold, and differing from that in Gold only by the substitution of two quartets for the two triplets. Fig. 79.

Funnels. The funnels are of one type only, and we have here quite a new arrangement of bodies within the funnel. At the bottom comes N63, followed by N110. The N63 is slightly lengthened.

Two Ad6 whirl on their own axes in the centre near the top, while four globes of eight Anu chase each other in a circle round them, spinning madly on their own axes. This axial spinning seems constant in all contained bodies. Lower down in the funnel a similar arrangement is seen, with a globe, N20, replacing the two Ad6, and four ovoids of six Anu replacing the globes of eight Anu. This group is identified as Yb44.

One funnel of Yttrium contains exactly the same number of Anu as is contained in a gaseous atom of Nitrogen. Further, N110, N63 and N20 are all constituents of Nitrogen. We put on record these facts, without trying to draw any conclusions from them. Some day we, or others, may find out their significance, and trace through them obscure relationships.

Yttrium = (Ad24+Yt16)+6 [N63+N110+Yt44+ (4Yt8+2Ad6])

Central globe	=	40	Anu
6 funnels of 261 Anu	=	1566	"
Total	=	1606	Anu

Number weight $\frac{1606}{18} = 89.22$

NIOBIUM

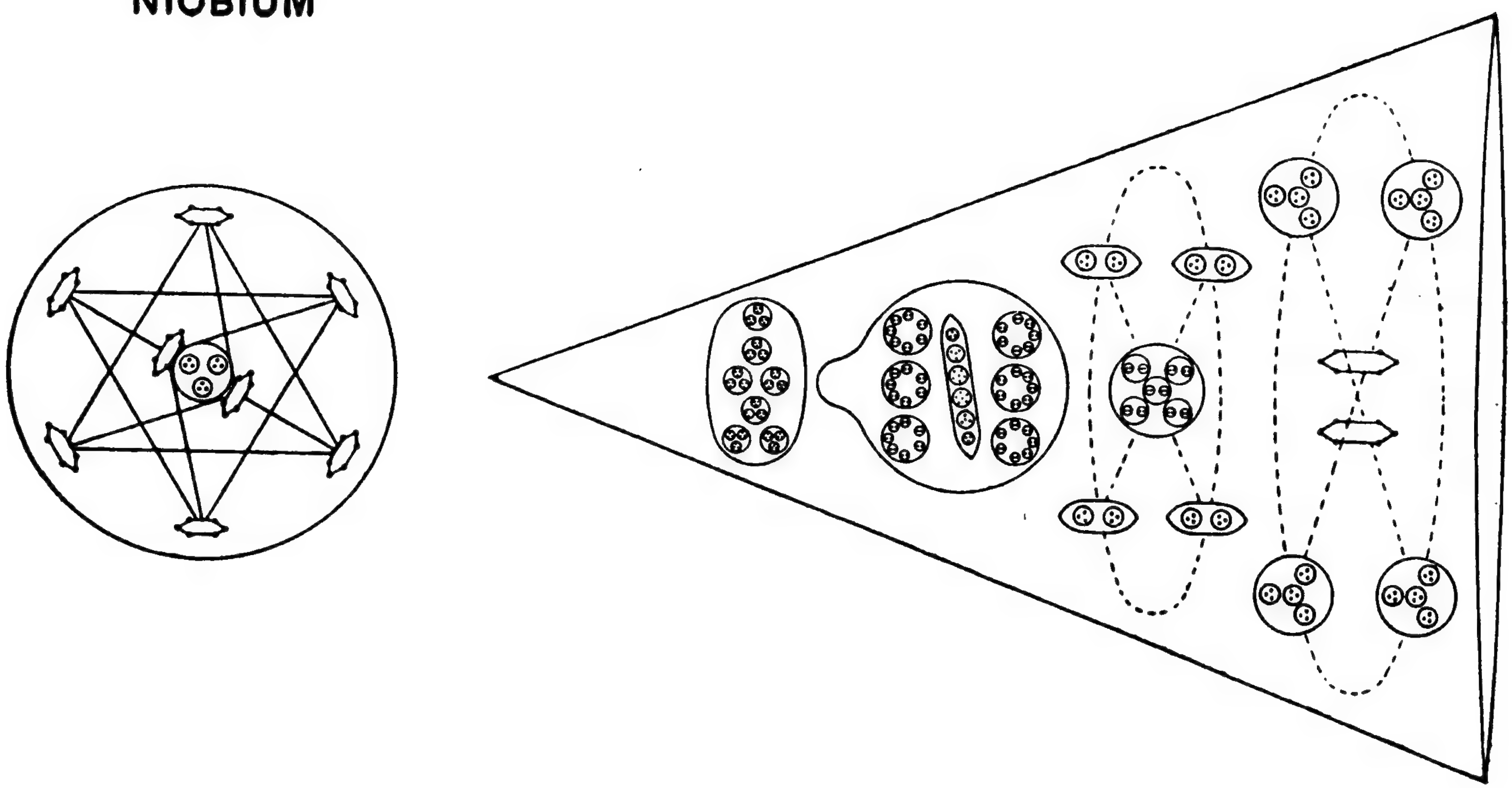


FIG. 80. NIOBIUM

ATOMIC NO. 41.

NIOBIUM

This element is as closely related to Yttrium as is Vanadium to Scandium. Fig. 80.

Central globe. In the central globe we find two interlaced tetrahedrons each of four Ad6, 2Ad24, and a central sphere of nine Anu, N9, spinning round in the centre, seventeen Anu being thus added in each globe.

Funnels. Niobium contains only one type of funnel, and these are exactly like those of Yttrium, save that the little globes which scamper round the two Ad6 contain twelve Anu instead of eight. Thus each funnel contains N63, N110, Yt44 and the new group which is identified as Nb60.

Niobium = (2Ad24+N9) +6 (N63+N110+Yt44+Nb60)

Central globe	=	57	Anu
6 funnels of 277 Anu	=	1662	„
Total	=	1719	Anu

$$\text{Number weight } \frac{1719}{18} = 95.50$$

ATOMIC NO 57

LANTHANUM

This element is closely related to Vanadium and Niobium. It also uses two of the forms belonging to the Calcium group, which have apparently been brought over from its predecessor in atomic weight, Barium, by the evolutionary force. Figs. 81, 82.

Central globe. The central globe is formed from a very striking group which occurs very often. It is made of five interpenetrating tetrahedrons, each tetrahedron being formed of four Ad6, making the group Ad24. The group of five of these tetrahedrons occurs first in Neon and has been called Ne120. In Lanthanum there is a small sphere of seven Anu, I.7, at the centre of the Ne120.

Funnels. As in Vanadium we find here two types of funnels.

Type A. These three funnels contain six groups, that nearest the centre being N63. Next we find N110, and then two groups from the Calcium type, Mo46 and Ca70. Then comes the group Yt44, and finally the large group Nb60.

Type B. These three funnels differ from those of the A type only in having a group Ca45 instead of the Mo46.

Lanthanum = (Ne120 + I.7)+3 [N63+N110+Mo46+Ca70+Yt44+Nb60]
+3 [N63+N110+Ca45+Ca70+Yt44+Nb60]

Central globe	=	127	Anu
3 funnels A of 393 Anu	=	1179	„
3 funnels B of 392 „	=	1176	„
Total	=	2482	Anu

$$\text{Number weight } \frac{2482}{18} = 137.9$$

20

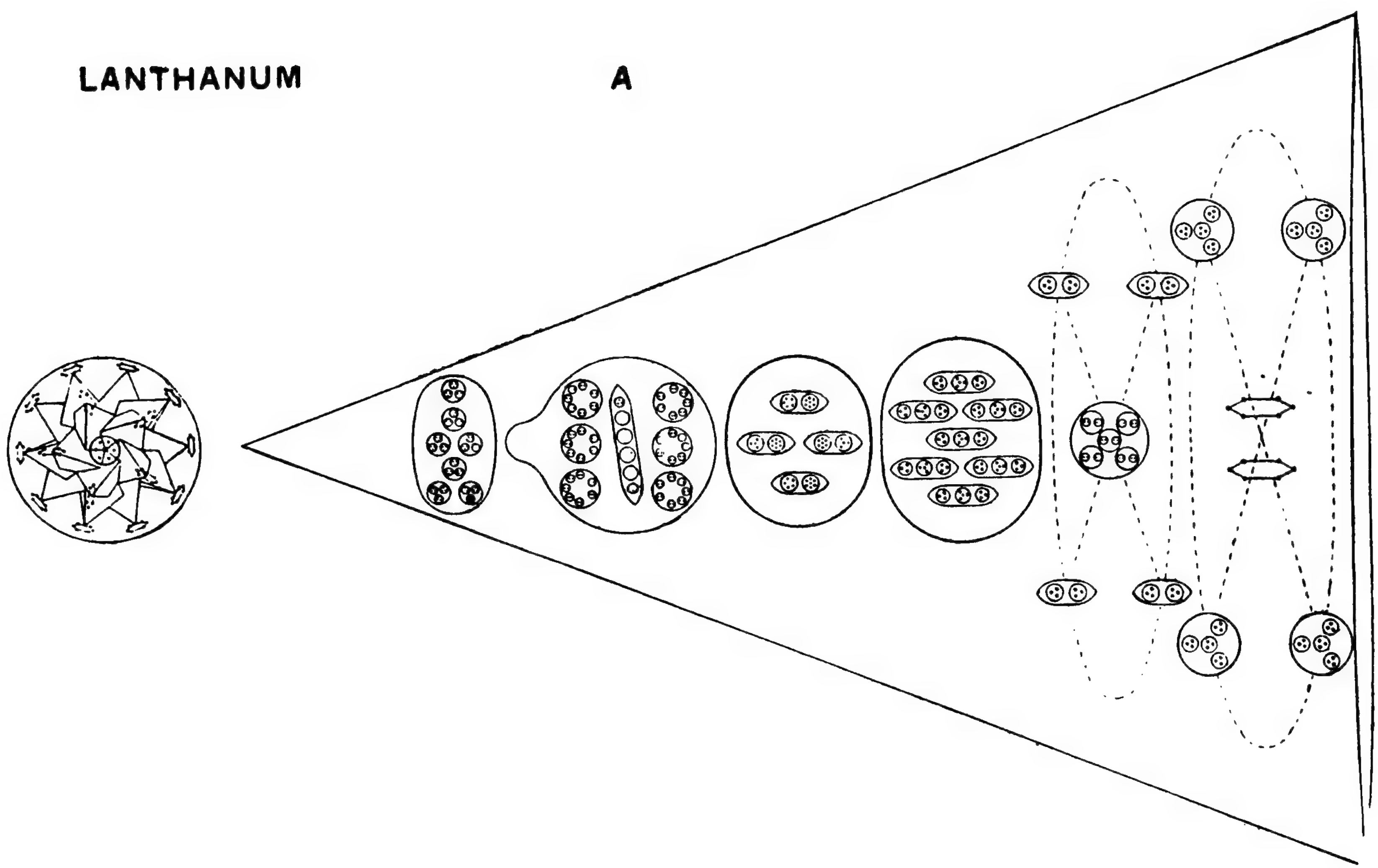


FIG. 81. LANTHANUM CENTRE AND FUNNEL A

LANTHANUM B

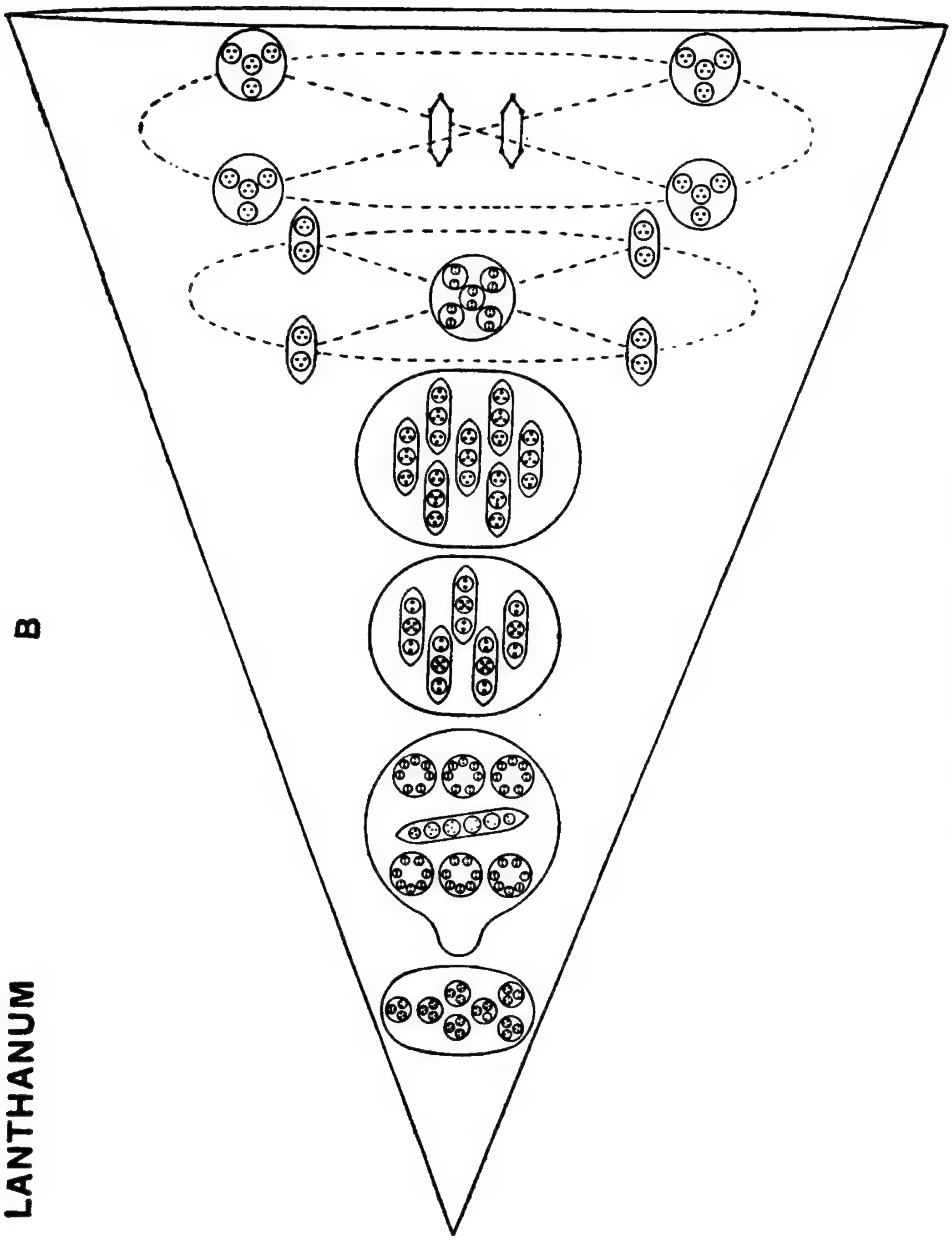


FIG. 82. LANTHANUM, FUNNEL B

PRAESEODYMIUM

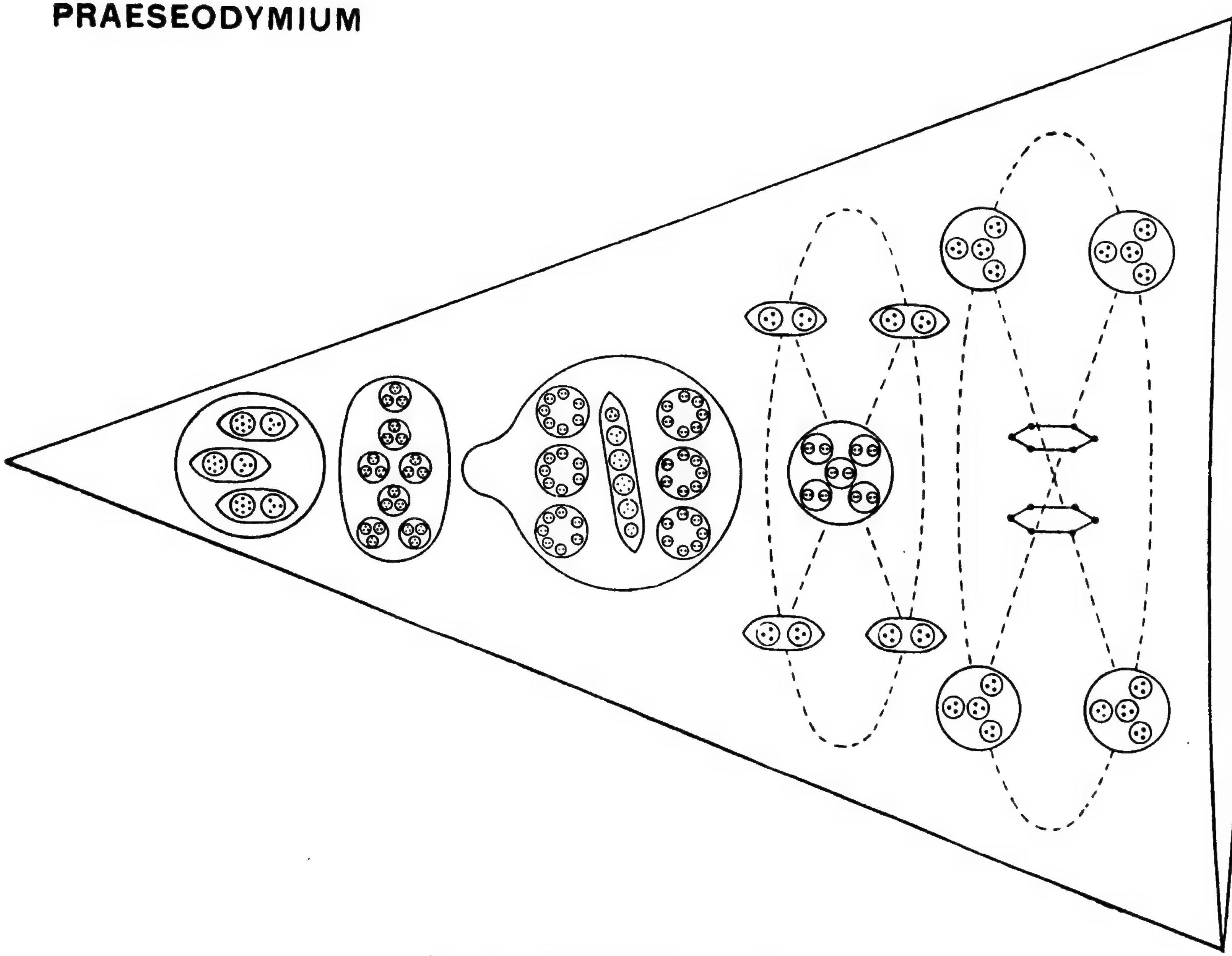


FIG. 83 PRAESEODYMIUM FUNNEL

ATOMIC NO. 59.

PRAESEODYMIUM

Central globe. The Central globe, Fig. 84, is complex and is borrowed from Cerium, its predecessor in the atomic weight list. It consists of a centre-piece of 27 Anu, Ce27, and then a ring of twenty segments, each containing 32 Anu. Thus the central globe is identical with Ce667. It also occurs in Neodymium.

Funnels. Praeseodymium has six similar funnels. Fig. 83. At the bottom of the funnel comes a group containing three ovoids, Mo11, making Pr33, and then the N63 and N110 groups. Next comes the Yt44, and finally Nb60.

Praeseodymium = Ce667+6[Pr33+N63+N110+Yt44+Nb60]

Central globe	=	667	Anu
Six funnels of 310 Anu	=	1860	"
Total	=	2527	Anu

$$\text{Number weight } \frac{2527}{18} = 140.4$$

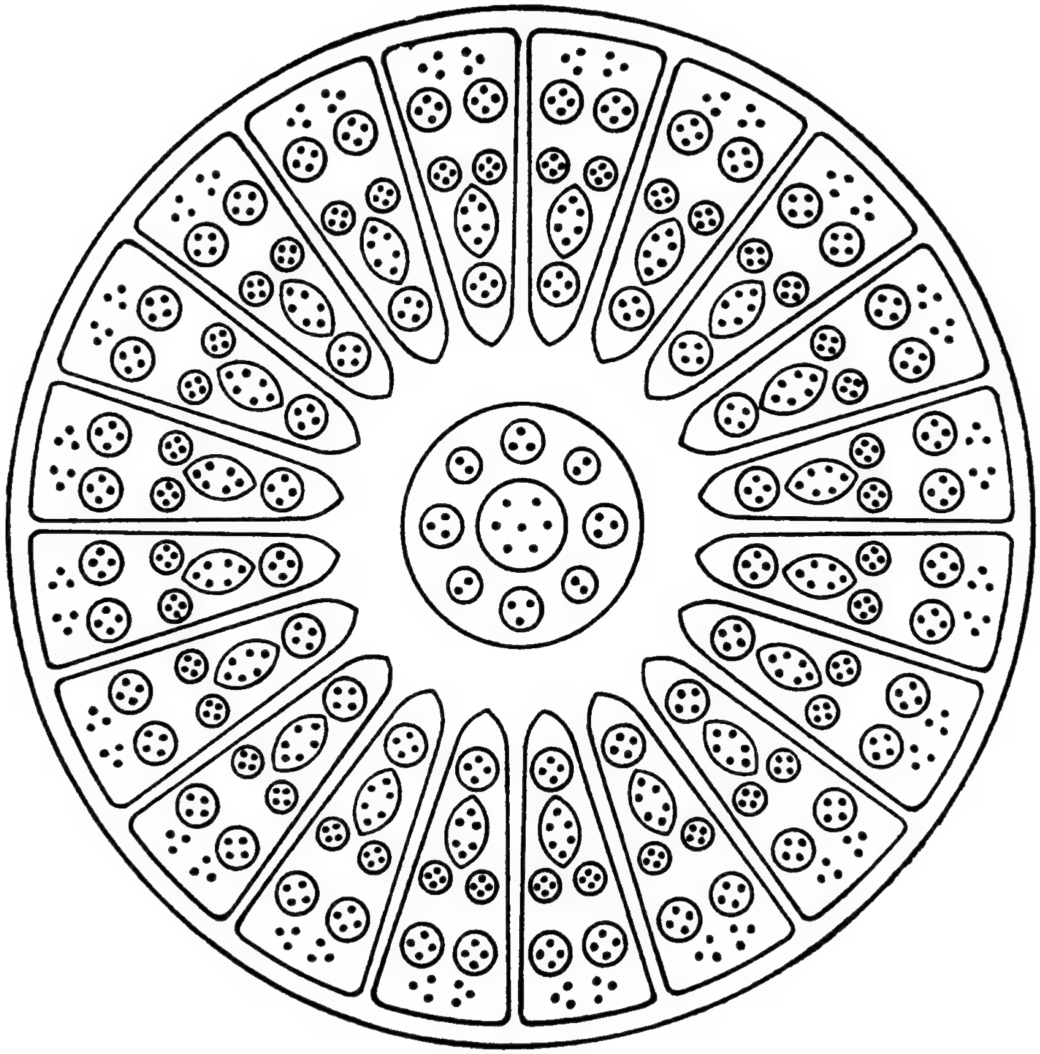


FIG. 84. PRAESEODYMIUM CENTRE, Ce667

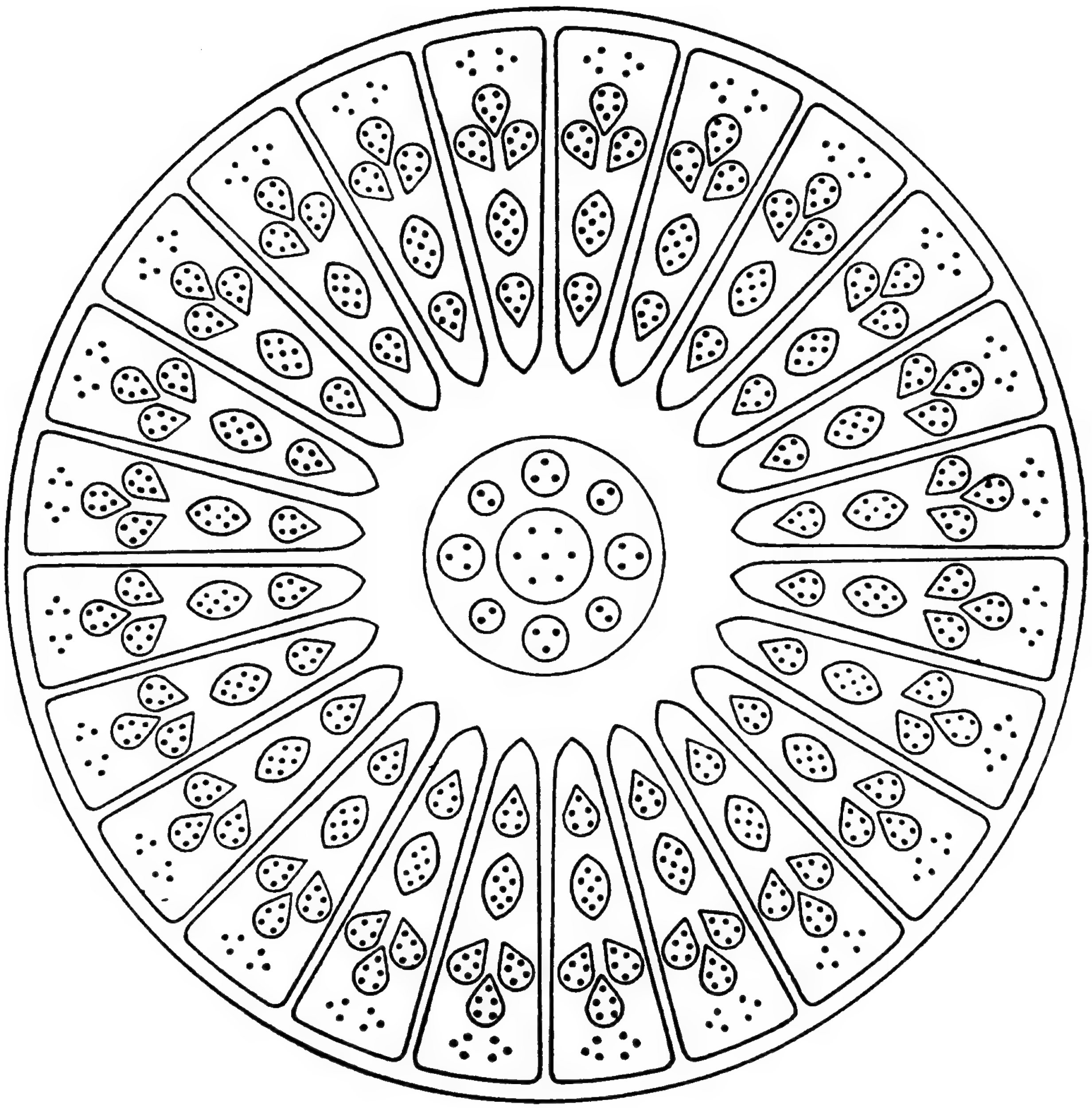


FIG. 85. LUTECIUM CENTRE, Lu819

LUTECIUM

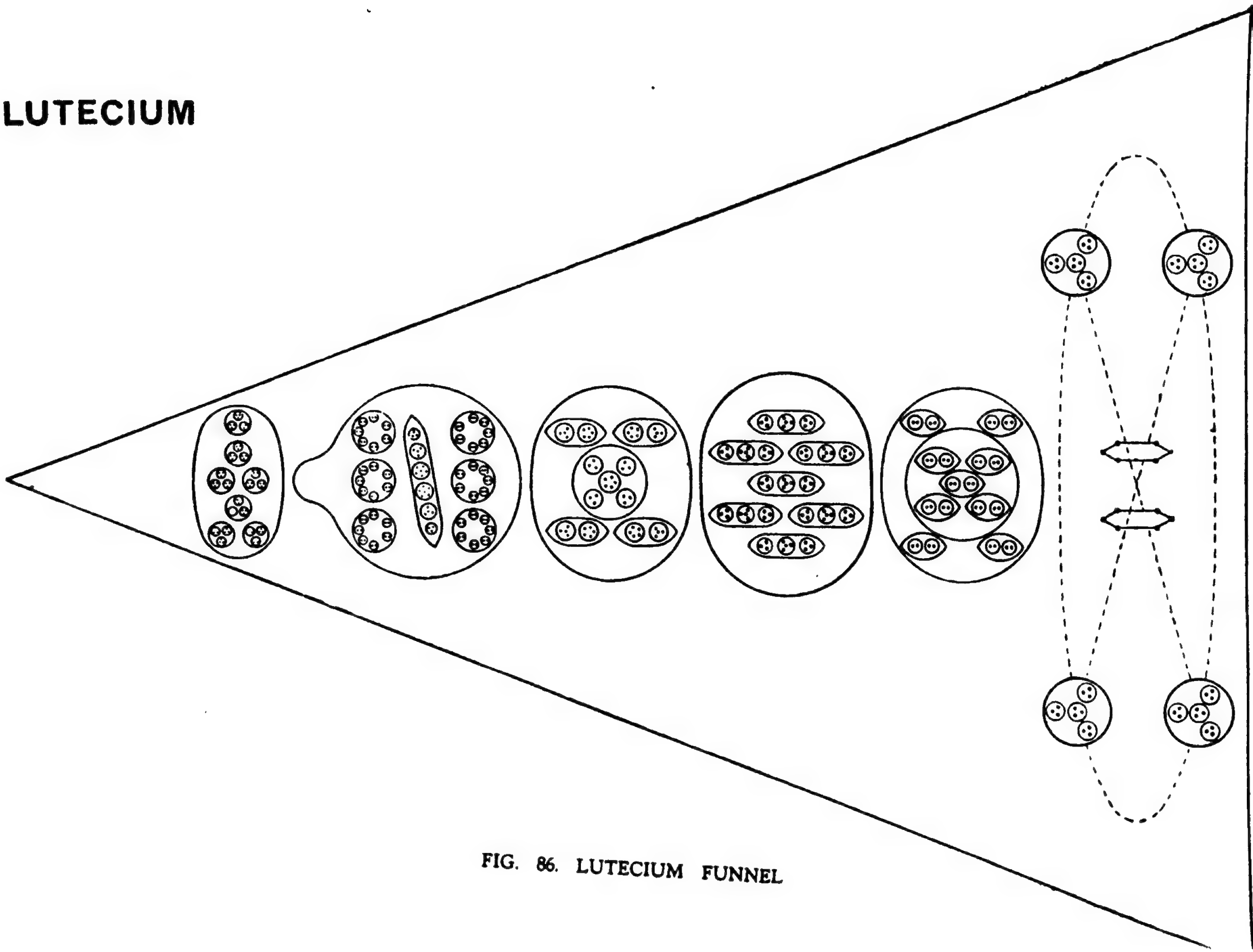


FIG. 86. LUTECIUM FUNNEL

ATOMIC NO. 71.

LUTECIUM

Central globe. In this element occurs the remarkable central globe containing 819 Anu which is found in Radium and other elements. As Lutecium is the element of lowest atomic weight in which this globe occurs it has been identified as Lu819. The globe is formed of a grand centre of 27 Anu surrounded by 24 segments of the Ba33 form, making up the 819 Anu. Fig. 85.

Funnels. Lutecium has six similar funnels. At the bottom of the funnel we find first N63, then N110, and then a group Lu53. Next comes Ca70 and then another new group Lu36 instead of the usual Yt44, and finally the familiar Nb60. Fig. 86.

Lutecium = Lu819+6 [N63+N110+Lu53+Ca70+Lu36+Nb60]

Central globe .	=	819	Anu
6 funnels of 392 Anu	=	2352	"
Total	=	3171	Anu

$$\text{Number weight } \frac{3171}{18} = 176.17$$

TANTALUM

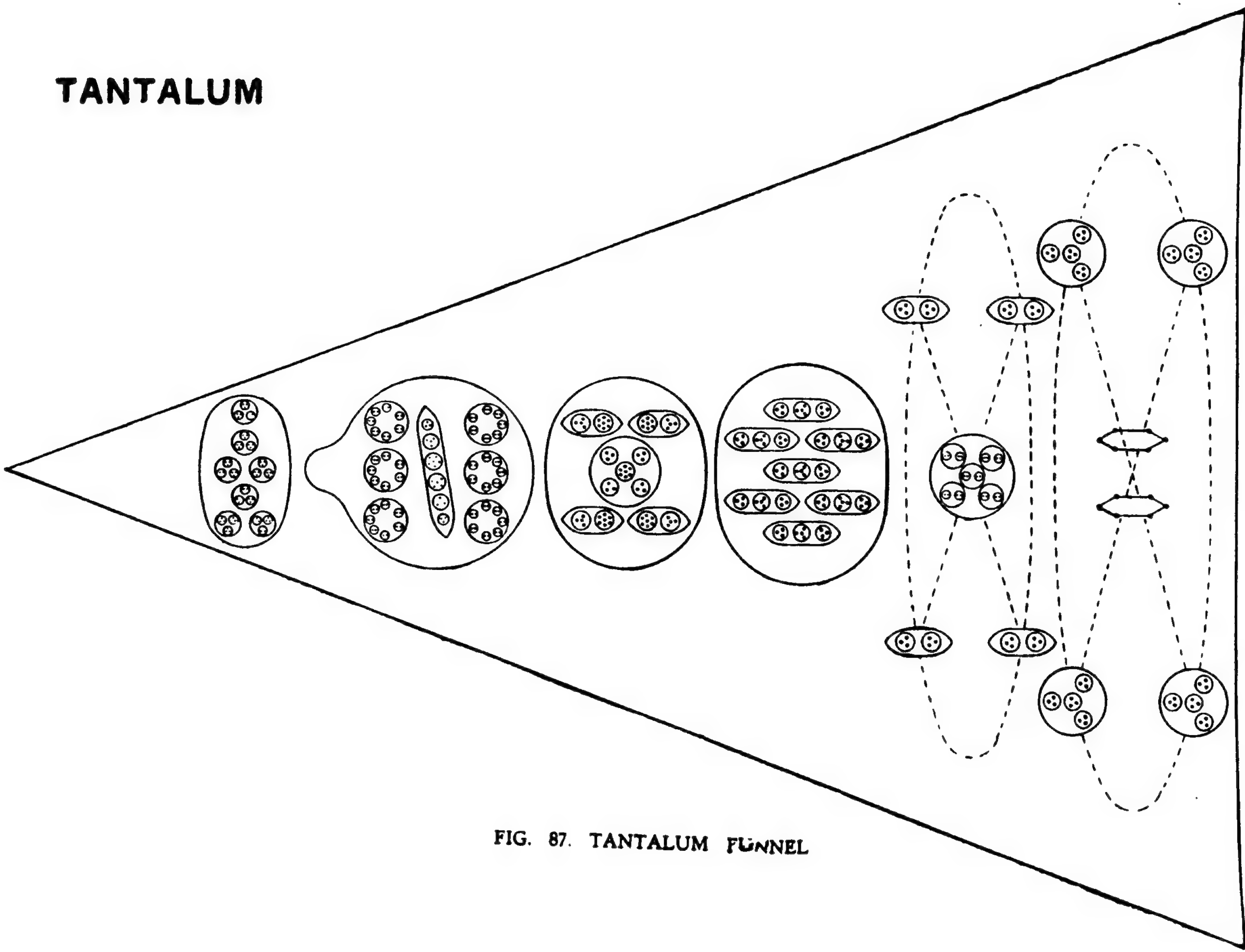


FIG. 87. TANTALUM FUNNEL

ATOMIC NO 73

TANTALUM

Central globe. The central globe is identical with that of Lutecium, Lu819. Fig. 88.

Funnels. Again we find six similar funnels opening on the faces of a cube. Fig. 87. At the bottom of the funnel we find first the N63 group, then N110. Next comes a group peculiar to Tantalum, Ta63; after that we find one of the all pervading Calcium type, Ca70, and then Yt44, and finally Nb60.

Tantalum = Lu819 + 6 [N63 + N110 + Ta63 + Ca70 + Yt44 + Nb60]

Central globe	=	819	Anu
6 funnels of 410 Anu	=	2460	"
Total	=	3279	Anu

$$\text{Number weight } \frac{3279}{18} = 192.1$$

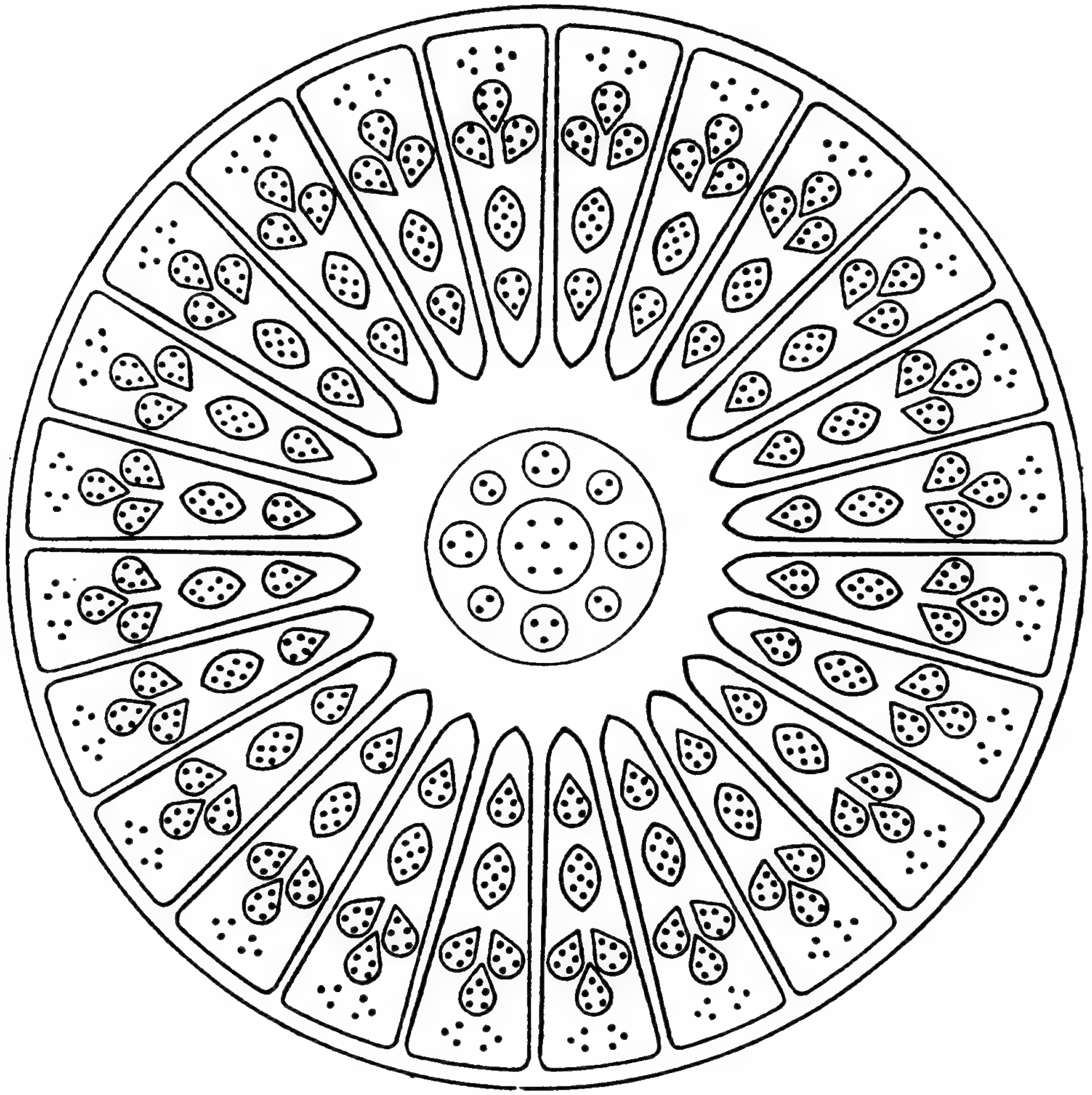


FIG. 88. TANTALUM AND ACTINIUM CENTRE—Lu819

ATOMIC NO. 89.

ACTINIUM

This element shows relations with more than one of the preceding elements both of its own and other groups. It has two types of funnels, and adds eight spikes, directed to the corners of the cube.

Actinium is a true element and not the temporary product of a heavier element. It is itself radioactive.

Central globe. The globe is identical with that of Tantalum, Lu819. Fig. 88.

Funnels:

Type A. These funnels are very similar to those of Lanthanum. They contain the whole of the Lanthanum A type funnel, with the addition of two Ca45 groups. Fig. 89.

Type B. For these three funnels Actinium has borrowed from Antimony and Zirconium. They contain the large ovoid from the arm of Zirconium, Zr212, which we shall describe later when we come to discuss that element. In addition to the Zr212, the funnel contains two groups from Antimony, Sb128, and Sb113 plus three extra Anu making up Ac116. Fig. 90.

Spikes. There are eight spikes, each consisting of Li63.

Actinium = Lu819+3 [N63+N110+Mo46+Ca160+Yt44+Nb60]
+3[Zr212+Sb128+Ac116]
+8Li63

Central globe	=	819	Anu
3 funnels A of 483 Anu	=	1449	,,
3 funnels B of 456 Anu	=	1368	,,
8 spikes of 63 Anu	=	504	,,
Total	=	4140	Anu

Number weight $\frac{4140}{18} = 230.0$

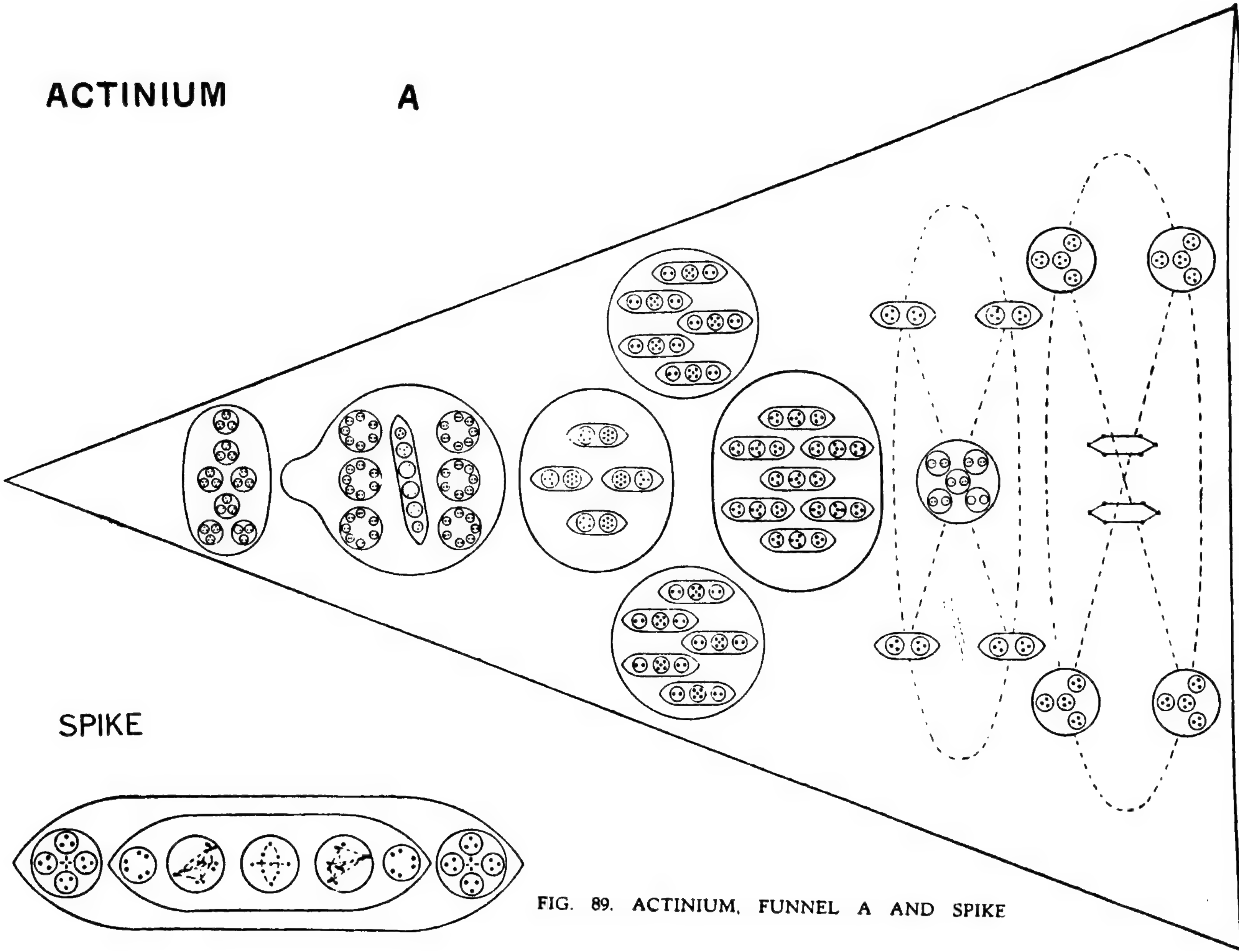


FIG. 89. ACTINIUM, FUNNEL A AND SPIKE

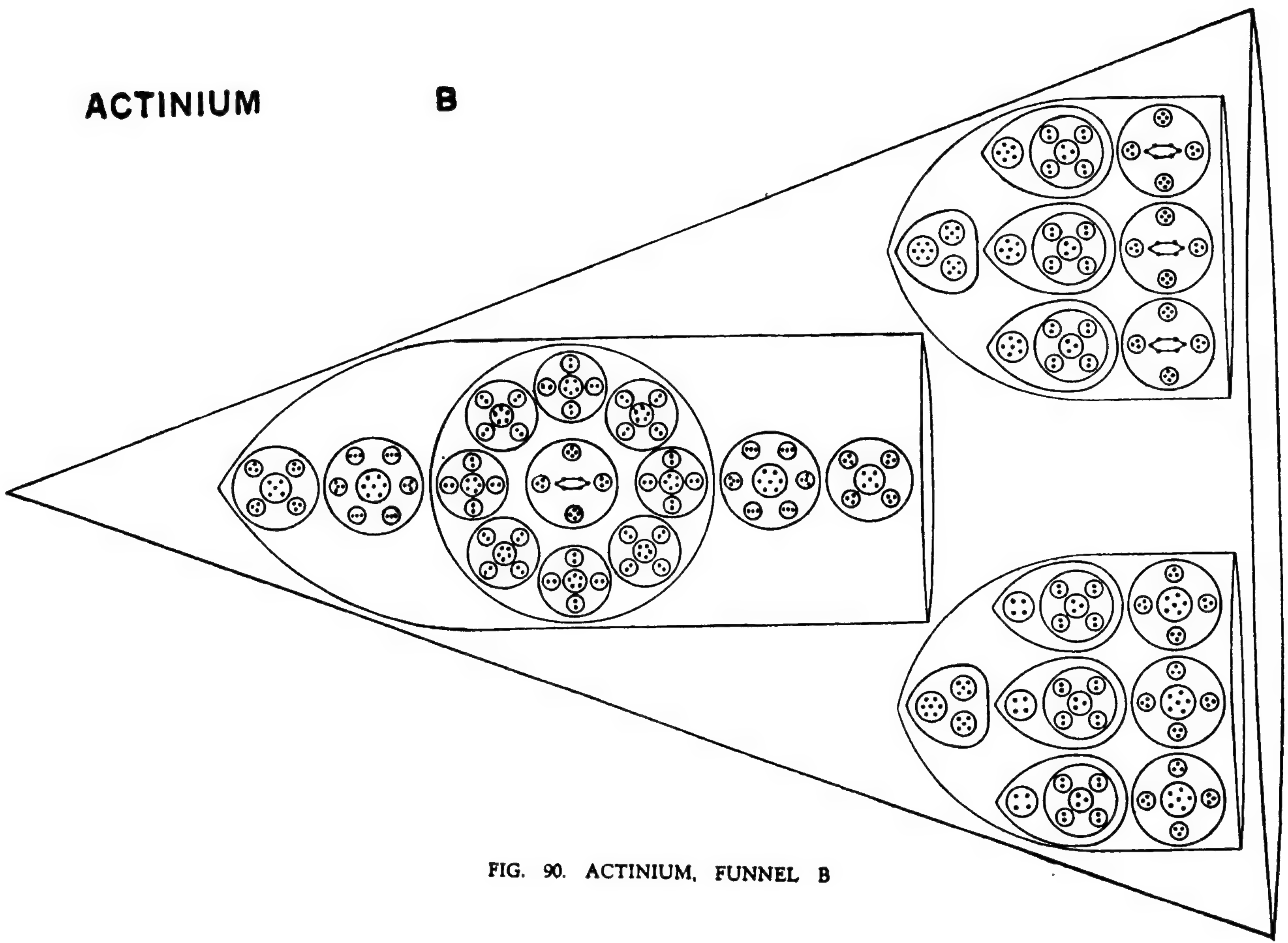


FIG. 90. ACTINIUM, FUNNEL B

ATO ΙΙC NO. 91.

PROTO-ACTINIUM

This element is very similar to Actinium. It contains two types of funnels and eight spikes.

Central globe. The globe is the familiar Lu819. Fig. 91.

Funnels:

Type A. These three funnels are exactly like the A type funnels in Actinium and contain 483 Anu. Fig. 92.

Type B. These three funnels contain the whole of the Actinium B funnels, Ac456, with the addition of a new group Pa29. Pa29 contains four Ad6 and a B5, the Ad6 being in a ring as shown. Fig. 93.

Spikes. The eight spikes are the Li63 groups as in Actinium.

Proto-Actinium = Lu819+3[N63+N110+Mo46+Ca160+Yt44+Nb60]
+3[Zr212+Sb128+Ac116+Pa29]
+8Li63

Central globe	=	819	Anu
3 funnels A of 483 Anu	=	1449	"
3 funnels B of 485 Anu	=	1455	"
8 spikes of 63 Anu	=	504	"
Total	=	4227	Anu

Number weight $\frac{4227}{18} = 233.72$

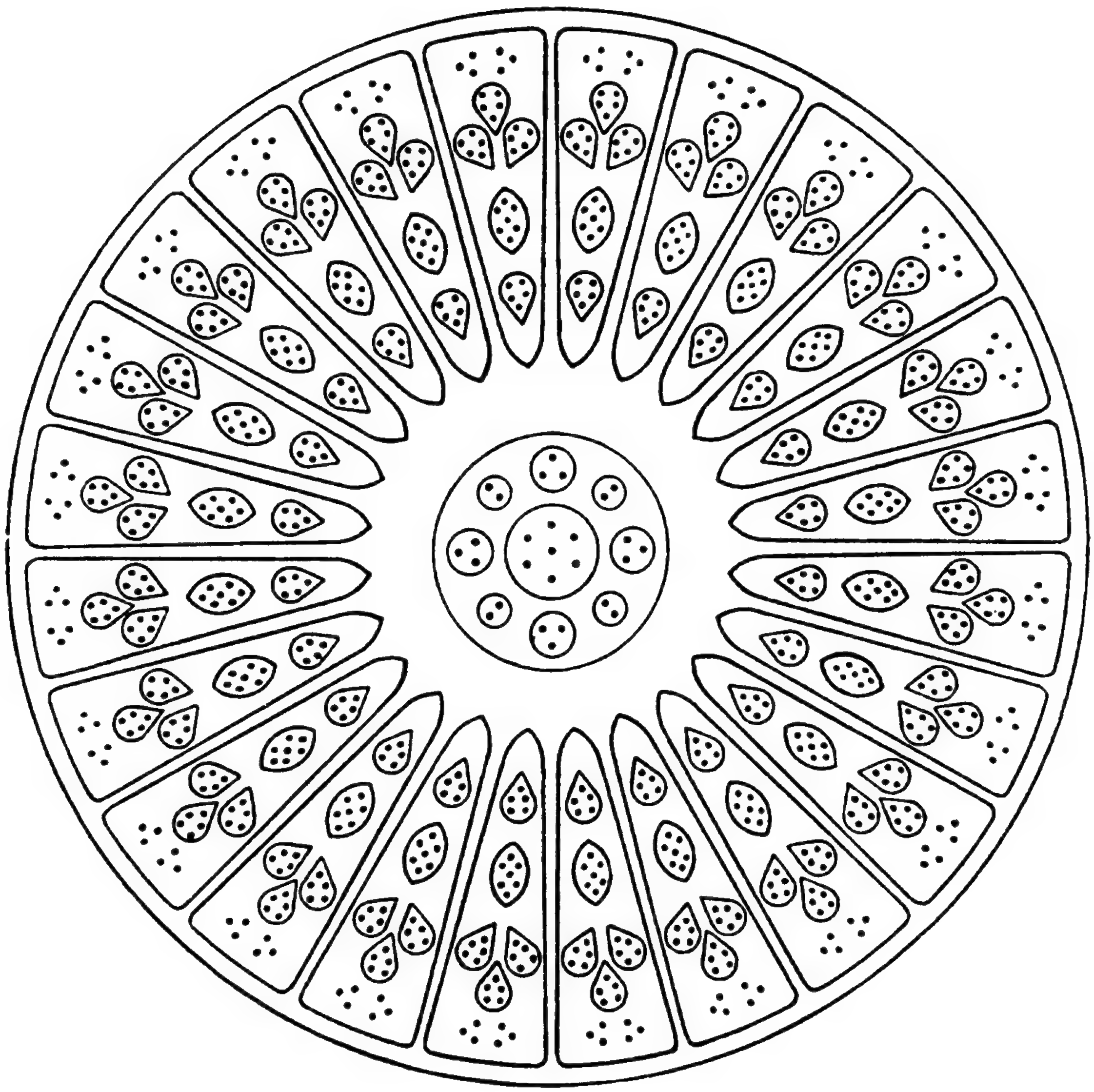


FIG. 91. CENTRE OF PROTO-ACTINIUM, Lu819

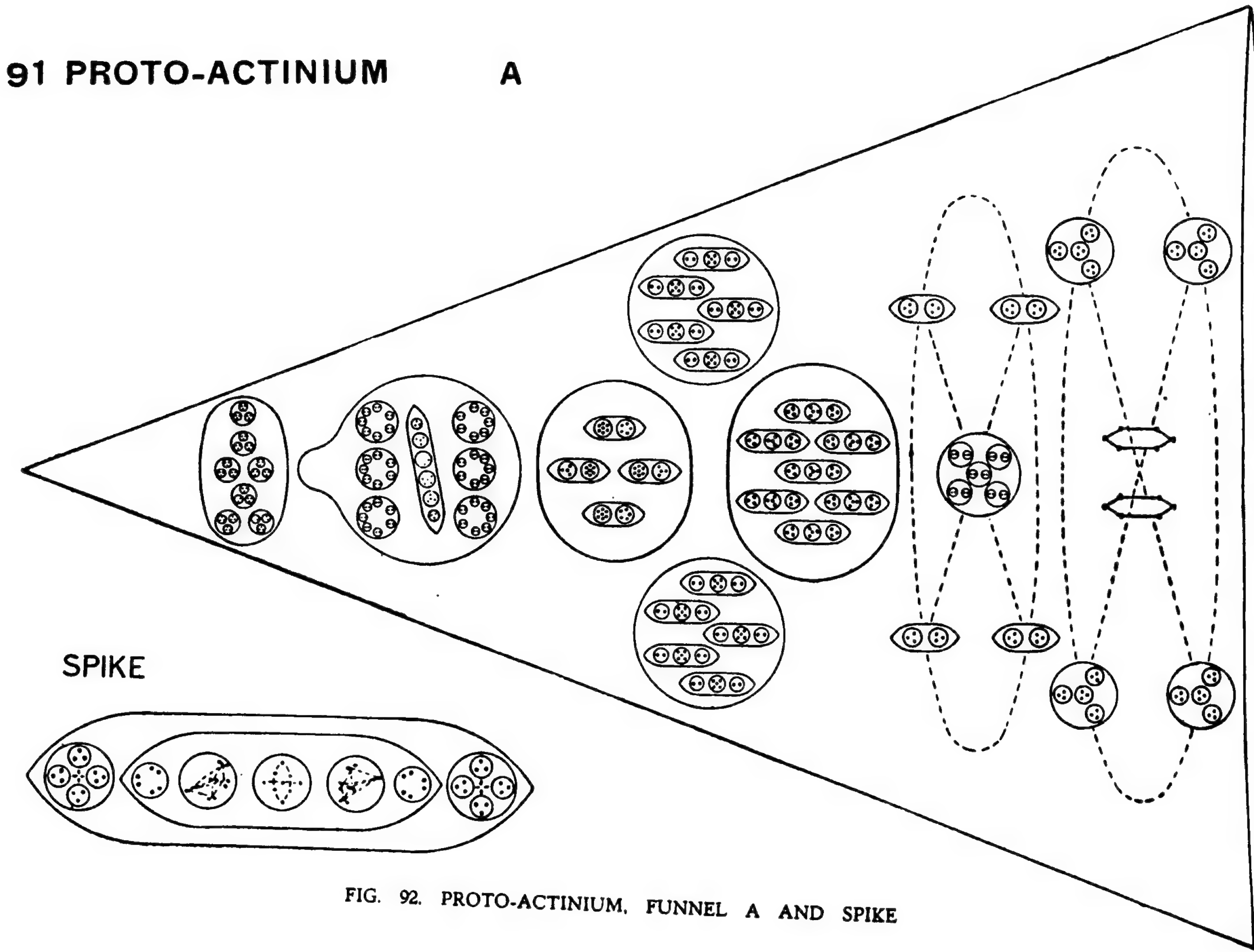


FIG. 92. PROTO-ACTINIUM, FUNNEL A AND SPIKE

91 PROTO-ACTINIUM B

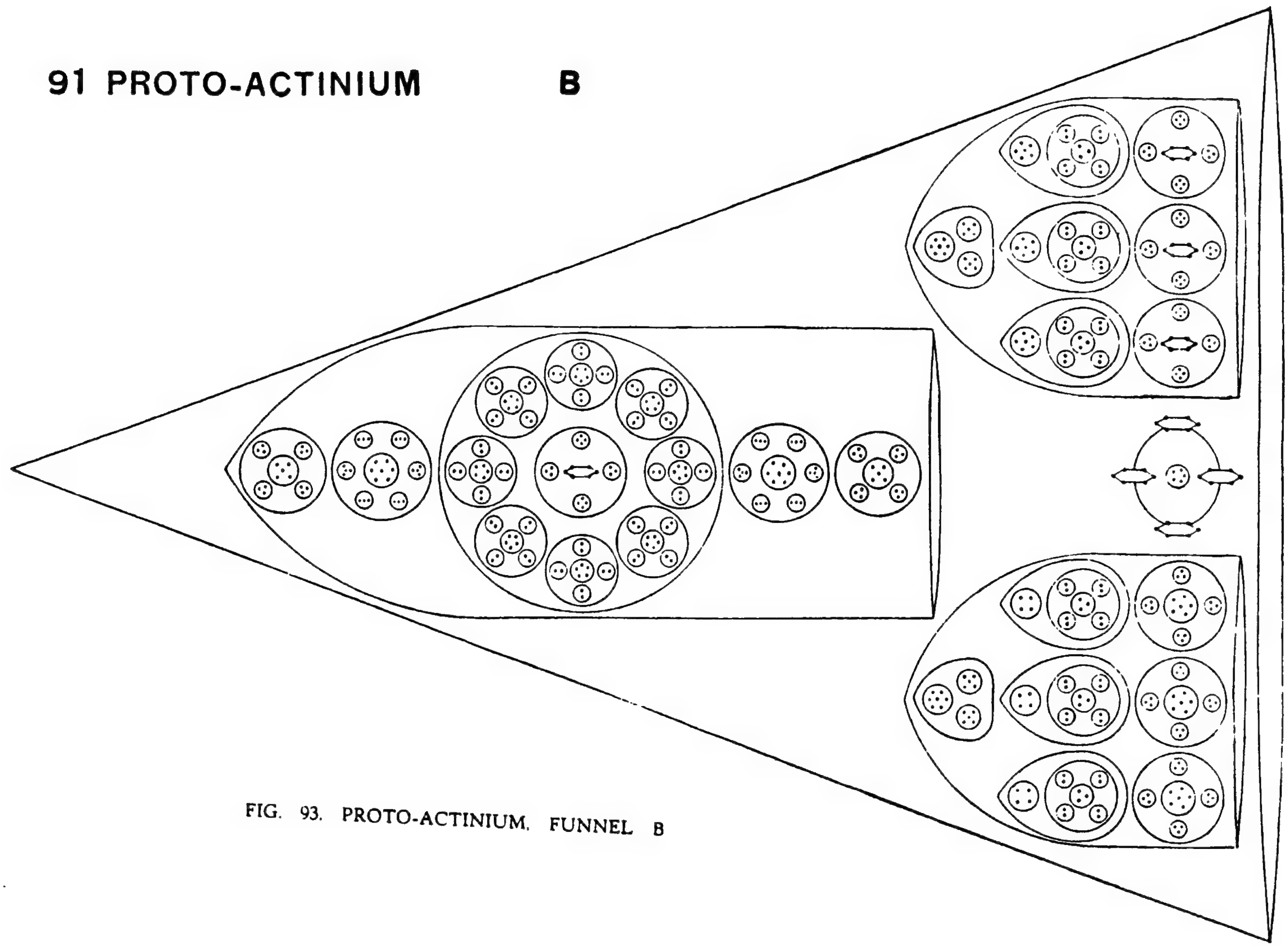


FIG. 93. PROTO-ACTINIUM. FUNNEL B

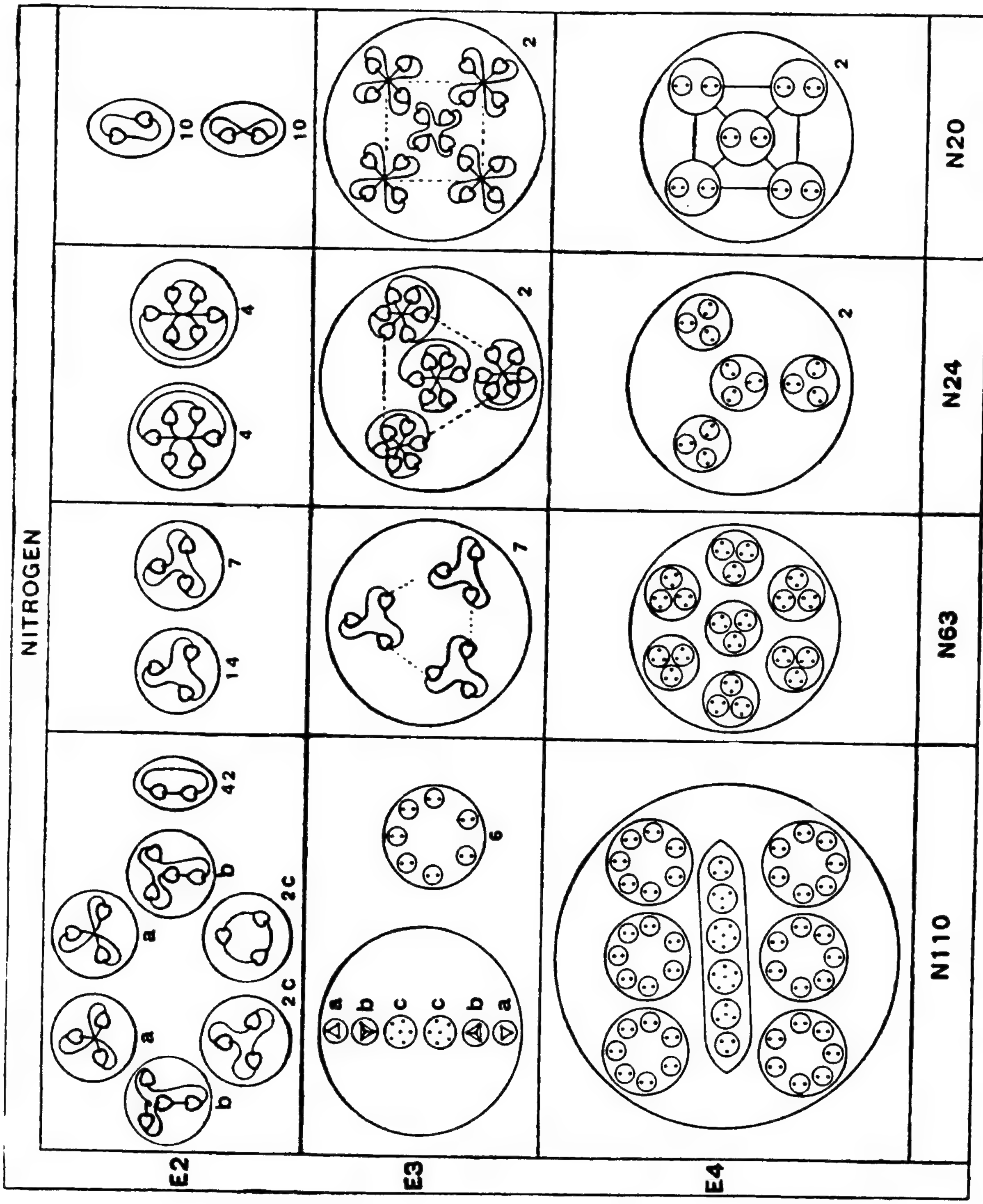


FIG. 94. DISINTEGRATION OF NITROGEN

DISINTEGRATION OF CUBE GROUP A

DISINTEGRATION OF NITROGEN

The constituents of Nitrogen are used constantly in this and other groups.

Nitrogen consists of six bodies, N110, N63, two N24 and two N20, each of these being complex. Fig. 94.

N110. The "balloon," N110, changes to a sphere, and holds together on the E4 level; on the E3 it yields six globes each containing seven duads, and these are all set free as duads on the E2 level. The ovoid is also set free on the E3 level, becoming a sphere; and on the E2 level it liberates its contained bodies, as two triplets, two quartets and two sextets which immediately become triplets.

N63. This body is liberated on the E4 level. On the E3 level it sets free seven bodies of 9 Anu and these become twenty-one triplets on the E2 level.

N24. The two N24 spheres are liberated on the E4 level. On the E3 level each assumes a tetrahedral form with six Anu at each point. On the E2 level each gives four sextets.

N20. On the E4 level each N20 is found as a tetrahedral arrangement of pairs of duads at the angles of a square-based pyramid.

On the E3 we find a similar arrangement though the distribution of the forces is changed. On the E2 level the groups separate into 10 duads from each N20.

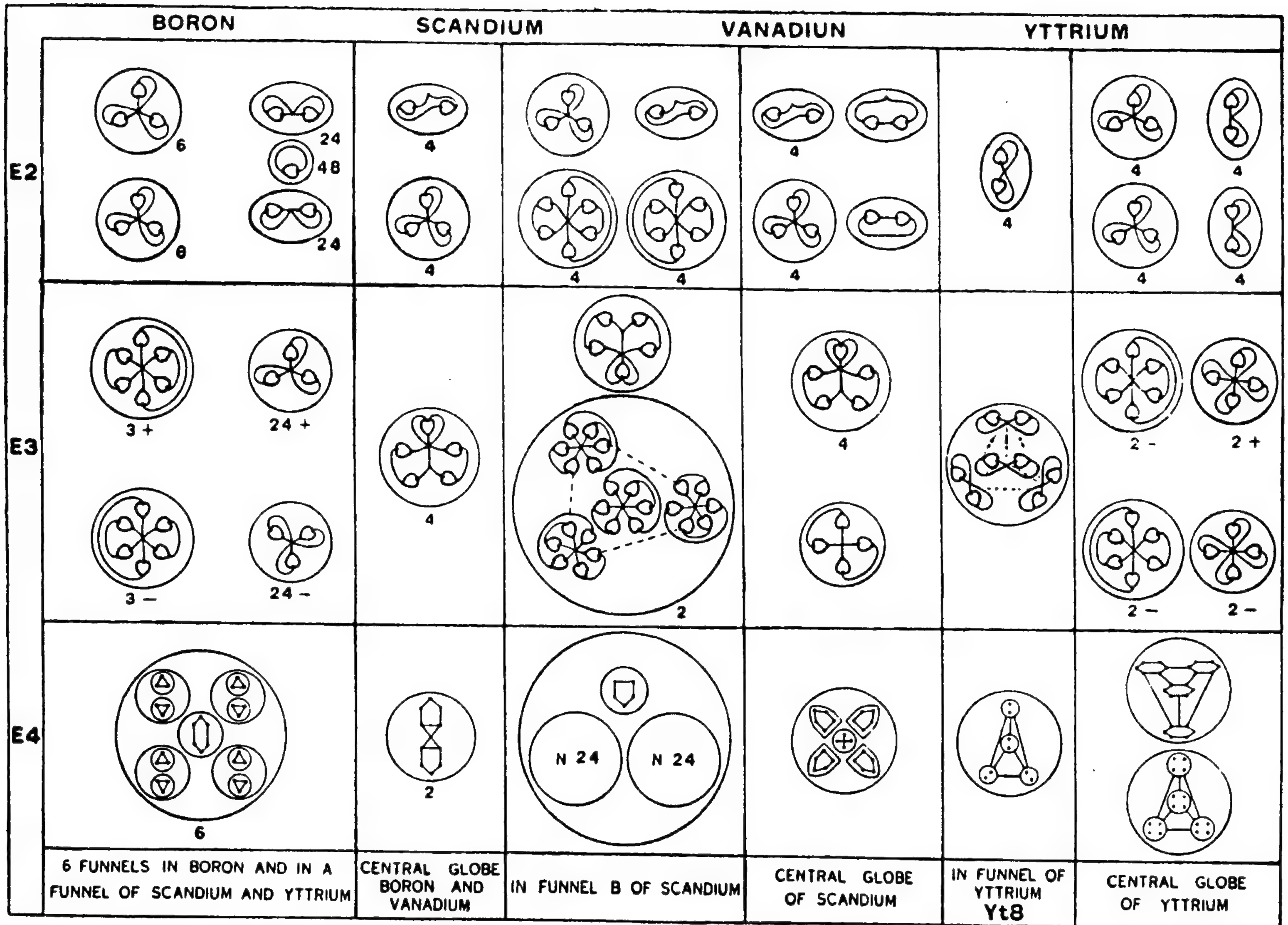


FIG. 95. DISINTEGRATION OF BORON, SCANDIUM, VANADIUM, YTTRIUM

DISINTEGRATION OF BORON

The Central globe, with its four quintets, is set free and breaks at once into two groups of ten Anu. Fig. 95.

On the E3 level four quintets are formed which, on the E2 level, are resolved into triplets and duads.

The funnels. The six funnels are first set free on the E4 level, where they assume the spherical form, showing a central Ad6 and four globes each containing two triplets.

On the E3 level the Ad6 behaves as usual and the triplets separate. On the E2 level the Ad6 gives triplets and the other triplets give duads and units.

DISINTEGRATION OF SCANDIUM

The Central globe shows a cross at its centre, with the four quintets whirling round it, on the E4 level. On the E3 level the quintets are set free and follow the Boron type, while the cross becomes a quartet. On the E2 level each quintet gives a triplet and a duad and the quartet two duads. Fig. 95.

Funnels A. In funnels A the Ad6 and the ovoids behave as in Boron, but the N110 escapes from the funnel as it changes to a sphere and holds together on the E4 level. The N110 disintegrates as shown under Nitrogen and the rest of the funnel as in Boron.

Funnels B. The N63 escapes when the funnel becomes a sphere on the E4 level. The remaining sphere contains the two N24 and the quintet B5. On the E3 and E2 levels these groups behave as in Nitrogen and Boron.

DISINTEGRATION OF VANADIUM

The Central globe follows the pattern of the globe of Boron. Fig. 95. The centre sphere I.7 is shown in Iodine.

The A funnels of Vanadium repeat the A funnels of Scandium with the addition of N20. All these disintegrate as shown under Nitrogen or Boron.

The B funnels also repeat the B funnels of Scandium with the addition of a N20 group and the substitution of a sextet, N6, for a quintet. These also disintegrate as shown under previous elements.

DISINTEGRATION OF YTTRIUM

The Central globe breaks up into two groups which disintegrate as shown in Fig. 95.

Funnels. On the E4 level the six funnels are first liberated and then the N110 and N63 escape and behave as shown in Nitrogen. The ovoids, 2H3, and the cigars, Ad6, are set free on the E3 level and behave as in Boron Fig. 95.

Yt8 is a tetrahedral arrangement of duads on the E3 level and these are set free as duads on the E2 level. The N20 behaves as shown under Nitrogen.

Fig. 96 shows the Cube Group A in a condensed form, from which the relationships in the group may be studied.

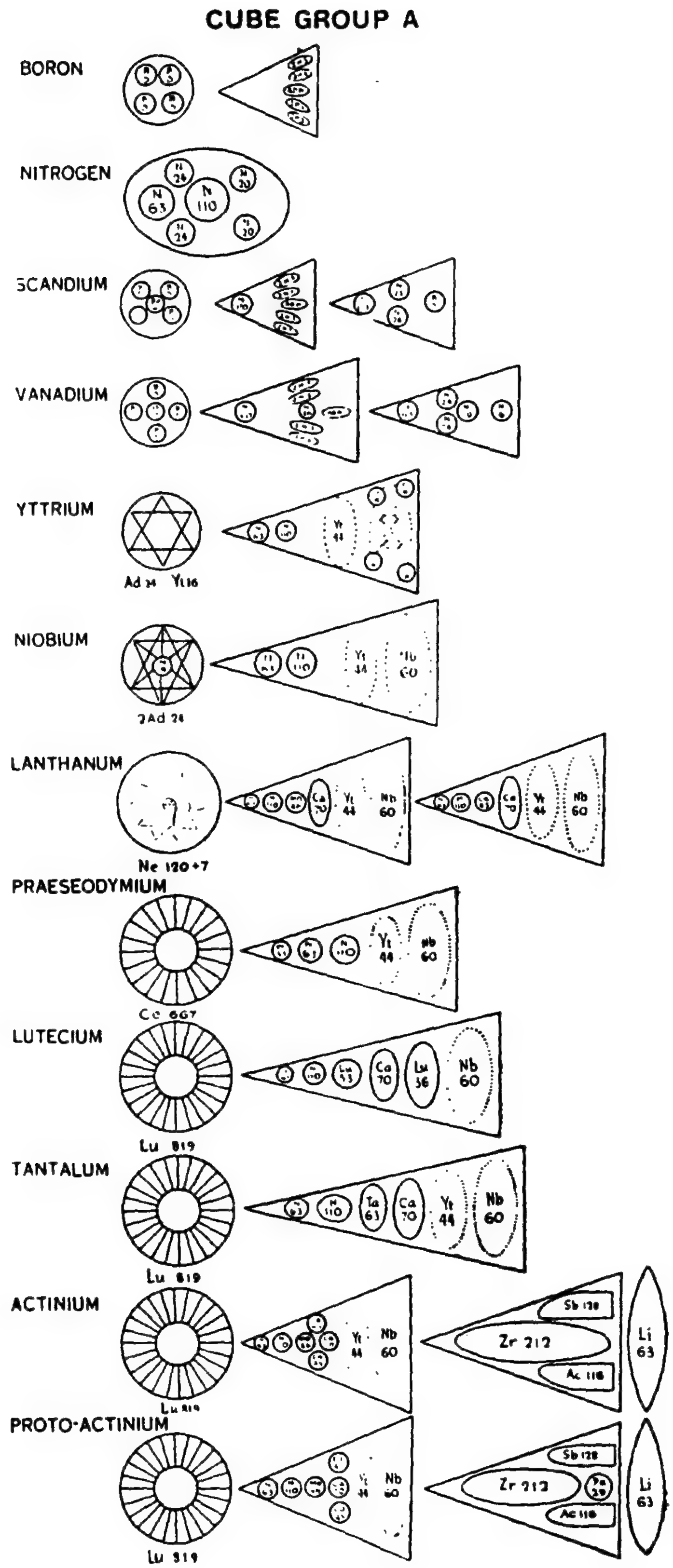


FIG. 96. CUBE GROUP A

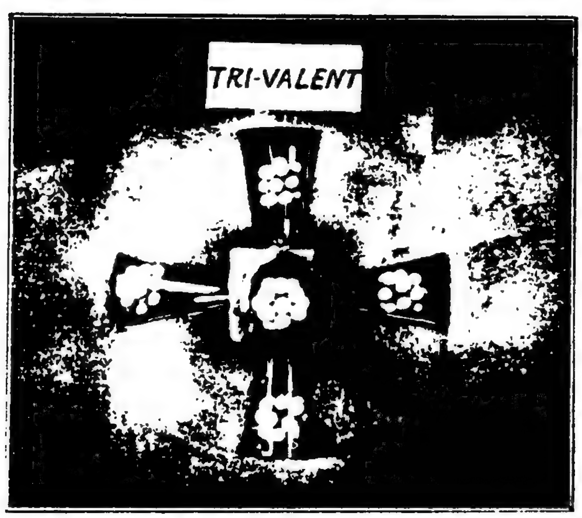


FIG. 97. TYPES OF CUBES

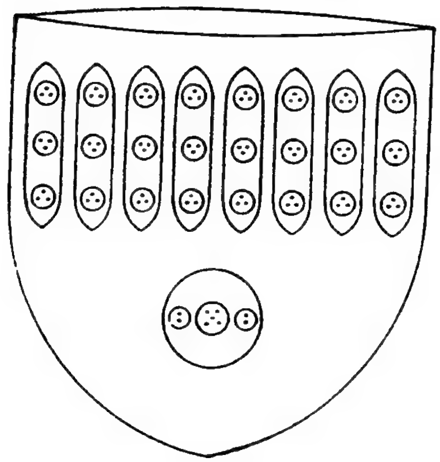
CHAPTER VIII

THE CUBE GROUP B

THE members of this group are all cubes. They occur on the right hand swing of the pendulum. Their characteristic valence is three but they often show higher valencies. They all have six funnels, as in Cube Group A, but they show quite a different design in the arrangement of the Anu.

ATOMIC NO.	ANU	ELEMENT	CENTRE	6 FUNNELS
13	486	Aluminium	—	6 [Al.9' + 8Al.9]
15	558	Phosphorus	--	6 [(B5 + 3N6 + 3P9) + (Li4 + 3Be4 + 3P9)]
31	1,260	Gallium	—	6 [(Ga7 + 3Ga15 + 3Ga20) + (B5 + 3Ga13 + 3Ga18)]
33	1,350	Arsenic	-	6 [Al.9' + 8(2N9 + Al.9)]
49	2,052	Indium	—	3 [2 (In16 + 3Ga15 + 3Ga20) + (In14 + 3Ga13 + 3Ga18)]
				3 [(In16 + 3Ga15 + 3Ga20) + 2(In14 + 3Ga13 + 3Ga18)]
51	2,169	Antimony	—	3 [2Sb128 + Sb113]
				3 [Sb128 + 2Sb113]
64	2,880	Gadolinium	Ne120	3 [2Sb128 + Sb113 + (Ca45 + 2N24)]
				3 [Sb128 + 2Sb113 + (Ca45 + Mo11 + 2N24)]
66	2,979	Dysprosium	Ne120	3 [2Sb128 + Sb113 + (Ca45 + 2Mo11 + 2N24)]
				3 [Sb128 + 2Sb113 + (Ca45 + 2Mc11 + 2N24)]
81	3,678	Thallium	Tl.687	3 [2Sb128 + Sb113 + (Ca45 + Tl.44 + 2N24)]
				3 [Sb128 + 2Sb113 + (Ca45 + Tl.44 + 2N24)]
83	3,753	Bismuth	Tl.687	3 [2Sb128 + Sb113 + (Ca45 + Mo46 + 2N24)]
				3 [Sb128 + 2Sb113 + {Ti + 88 + (Ga20 + 4Zr13) }]

ALUMINIUM



PHOSPHORUS

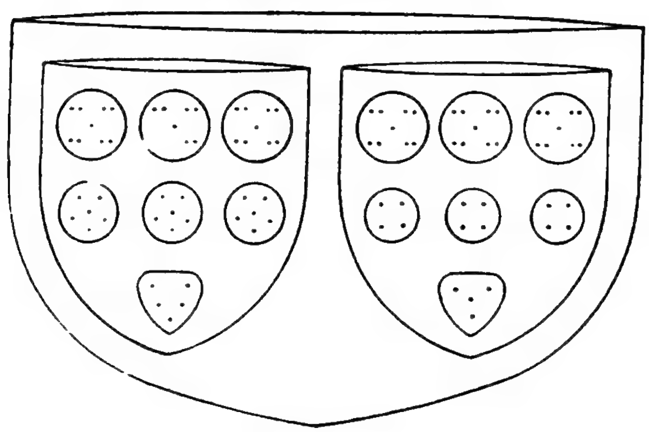


FIG. 98. ALUMINIUM, PHOSPHORUS

ATOMIC NO. 13.

ALUMINIUM

As the head of the group this element is, as usual, simple. There is no central globe. Fig. 98.

Funnels. The six funnels each contain eight similar ovoids, Al.9, of three spheres of three Anu. Below these is an ovoid Al.9', again of three spheres, these being two duads and a pentad.

Aluminium = 6 (Al.9'+8 Al.9)

6 funnels of 81 Anu	=	486	Anu
Total	=	486	Anu

$$\text{Number weight } \frac{486}{18} = 27.00$$

ATOMIC NO. 15.

PHOSPHORUS

Like Aluminium, Phosphorus has no central globe. Fig. 98.

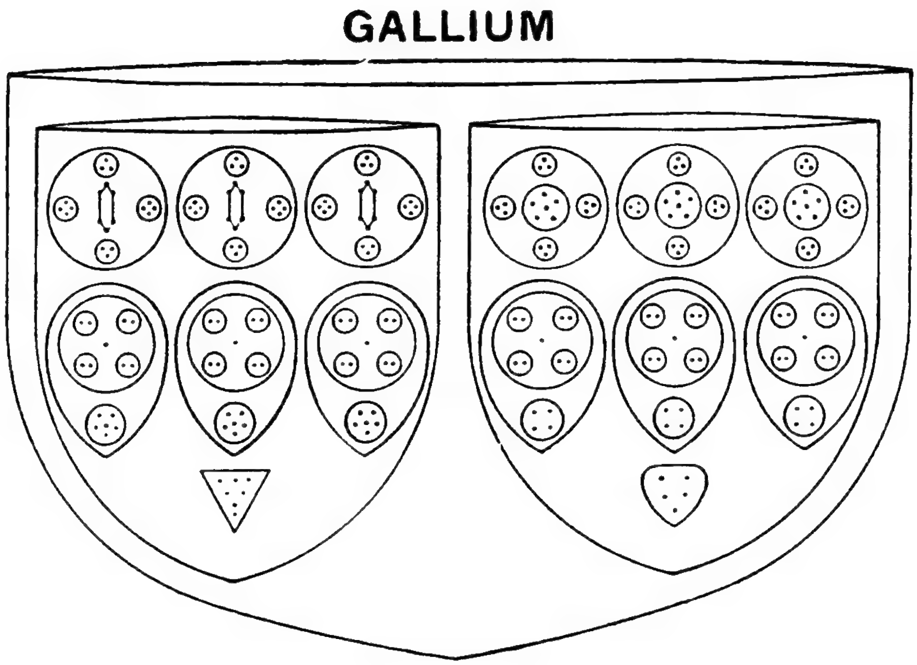
Funnels. Each of the six funnels contains two segments.

Segment A contains at the bottom a group B5, then three N6, and then three spheres, P9, of nine Anu, making 50 Anu in all. Segment B also contains seven spheres, first a tetrad Li4, with its Anu at the corners of a tetrahedron, then three spheres of four Anu, Be4, and then the three spheres, P9, of nine Anu found in segment A. Segment B contains 43 Anu.

Phosphorus = 6 [(B5+3N6+3P9) + (Li4+3Be4+3P9)]

6 funnels of 93 Anu	=	558	Anu
Total	=	558	Anu

$$\text{Number weight } \frac{558}{18} = 31.00$$



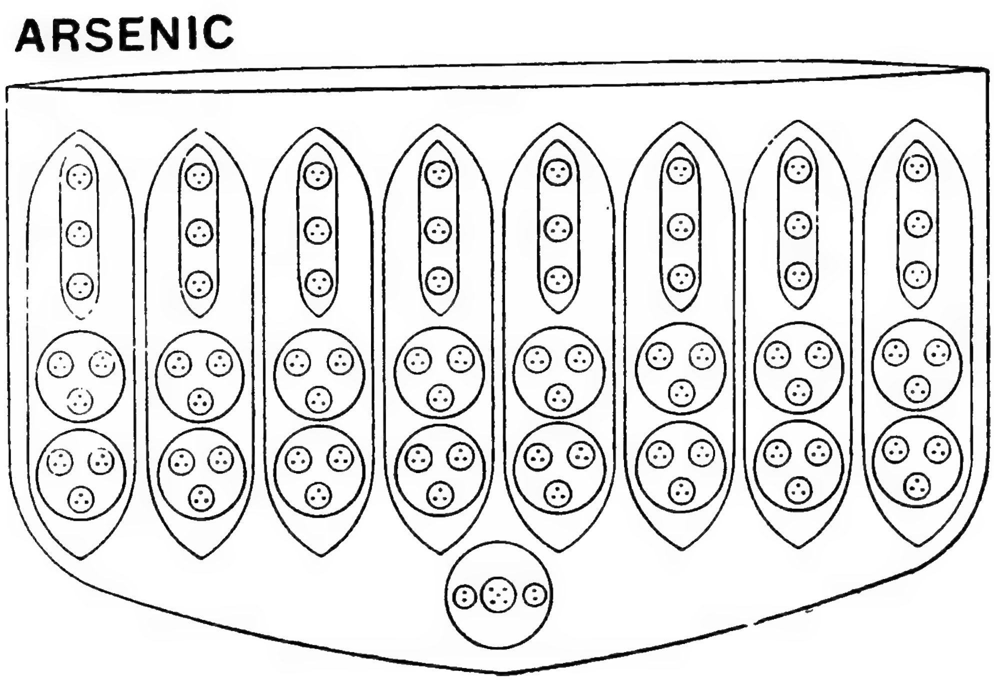


FIG. 99. GALLIUM, ARSENIC

ATOMIC NO. 31.

GALLIUM

There is no central globe in this element. Fig. 99.

Funnels. Gallium has six similar funnels, each with two segments.

Segment A. There is first a cone of 7 Anu, then three rather curiously formed groups of fifteen Anu, containing a P9 group and an N6. The three upper spheres, Ga20, in segment A are made up of two Be4 and two H3 in the form of a cross with an Ad6 in the centre.

The total number of Anu in segment A is 112 Anu.

Segment B is somewhat similar to segment A. It contains first a B5 instead of the cone, then three groups Ga13, made up of P9 and Be4, and then a row of three spheres, Ga18, each with four H3 in the form of a cross with N6 in the centre. Segment B contains 98 Anu.

Gallium = 6 [(Ga7+3Ga15+3Ga20)+(B5+3Ga13+3Ga18)]

6 funnels of 210 Anu	=	1260	Anu
Total		1260	Anu

Number weight $\frac{1260}{18} = 70.00$

ATOMIC NO. 33.

ARSENIC

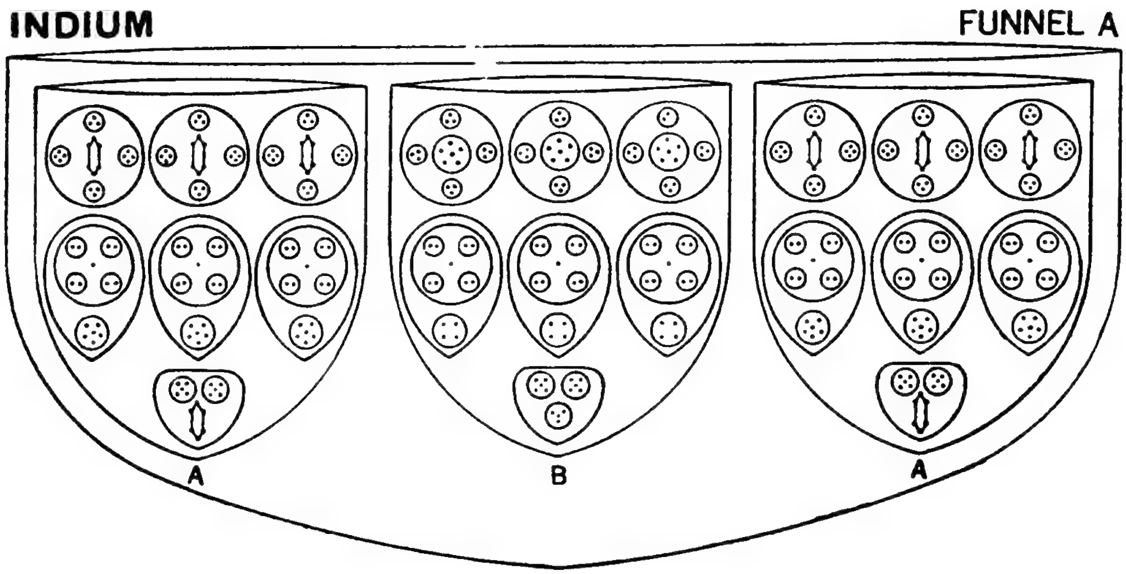
Once more there is no central globe. Fig. 99.

Funnels. All six funnels are alike, and there are not two separate segments. Arsenic resembles Aluminium in having eight internal sub-divisions in the funnels, and the ovoids which form the top ring are identical with those in Aluminium save for the minute difference that in Aluminium the ovoids stand the reverse way from those in Arsenic. In Arsenic the top and bottom triplets in the top ovoids point downwards and the middle one upwards, in Aluminium the opposite is true. Arsenic inserts sixteen spheres, in two rows of eight, between the ovoids and the bottom globe Al.9', which is similar to that in Aluminium. Each of these 16 spheres contain nine Anu, N9, so that Arsenic adds no less than 144 Anu to each funnel of Aluminium. The total in one Arsenic funnel is 225 Anu.

Arsenic = 6 [Al.9'+8 (2N9+Al.9)]

6 funnels of 225 Anu		1350	Anu
Total	=	1350	Anu

Number weight $\frac{1350}{18} = 75.00$



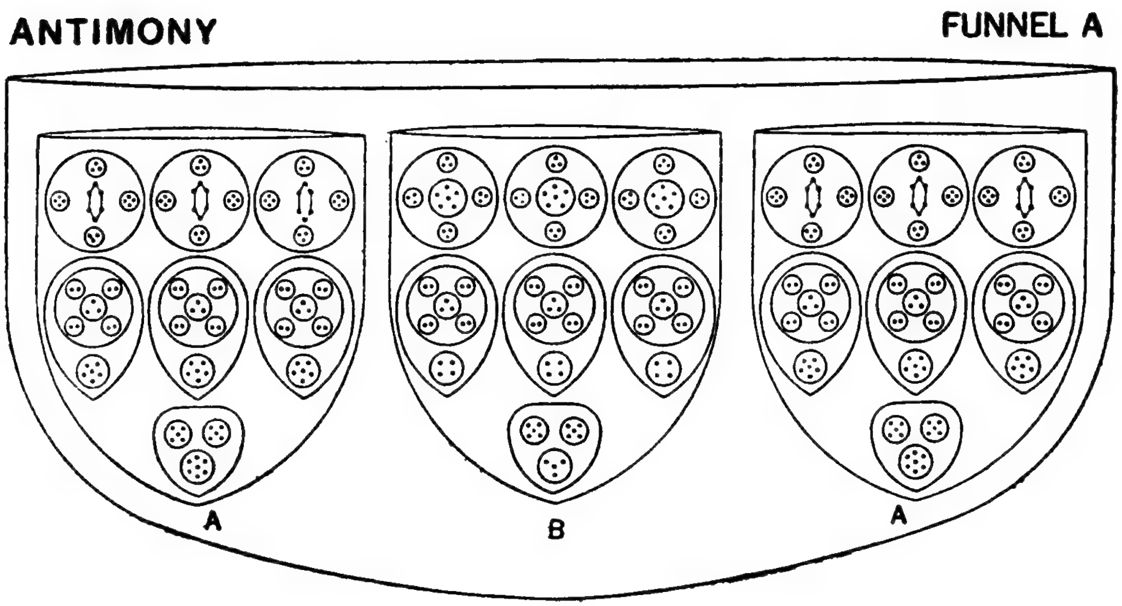


FIG. 100. INDIUM, ANTIMONY

ATOMIC NO 49.

INDIUM

This element also has no central globe. Fig. 100.

Funnels. Each of the six funnels has three segments instead of two, and the segments are of two types. Three funnels contain two segments of type A and one of type B; the other three funnels contain two segments of type B and one of type A. Segment A is similar to segment A of Gallium, save in the substitution of a body of 16 Anu for the cone of 7 Anu, making a total of 121 Anu. Segment B is similar to the B segment of Gallium save that a body of 14 Anu, In14, is substituted for the B5 group, making a total of 107 Anu.

Type A funnels contain 2A+B. Type B funnels contain A+2B.

Indium = 3 [2 (In16+3Ga15+3Ga20)+(In14+3Ga13+3Ga18)]
+3 [(In16+3Ga15+3Ga20) +2 (In14+3Ga13+3Ga18)]

3 funnels 2A+B	=	1047	Anu
3 funnels A+2B	=	1005	„
Total	=	2052	Anu

$$\text{Number weight } \frac{2052}{18} = 114.0$$

ATOMIC NO 51

ANTIMONY

Antimony is very similar to Indium. There is no central globe. Fig. 100.

Funnels. As in Indium there are two types of funnels and each funnel contains three segments, of types A and B.

Segment A consists of seven bodies. Nearest the centre we find a group containing two quintets and a septet L7. This group may be identified as Sb17'. Then comes a ring of three spheres containing 17 Anu, Sb17. In this sphere we find that the unit in the centre of the P9 group has been replaced by a triplet. Finally there is another ring of three globes each containing two triplets, two quartets and an Ad6. This is Ga20. This whole segment is Sb128. Segment B also contains seven bodies, first a group of three small spheres which is identical with In14, then a ring of three Sb15, and finally three Ga18, the whole making Sb113.

So in Antimony we find three funnels of Type A containing 2A+B segments and three funnels of Type B containing A+2B.

Antimony = 3 (2Sb128+Sb113)+3 (Sb128+2Sb113)

3 funnels 2A+B	=	1107	Anu
3 funnels A+2B	=	1062	„
Total	=	2169	Anu

$$\text{Number weight } \frac{2169}{18} = 120.5$$

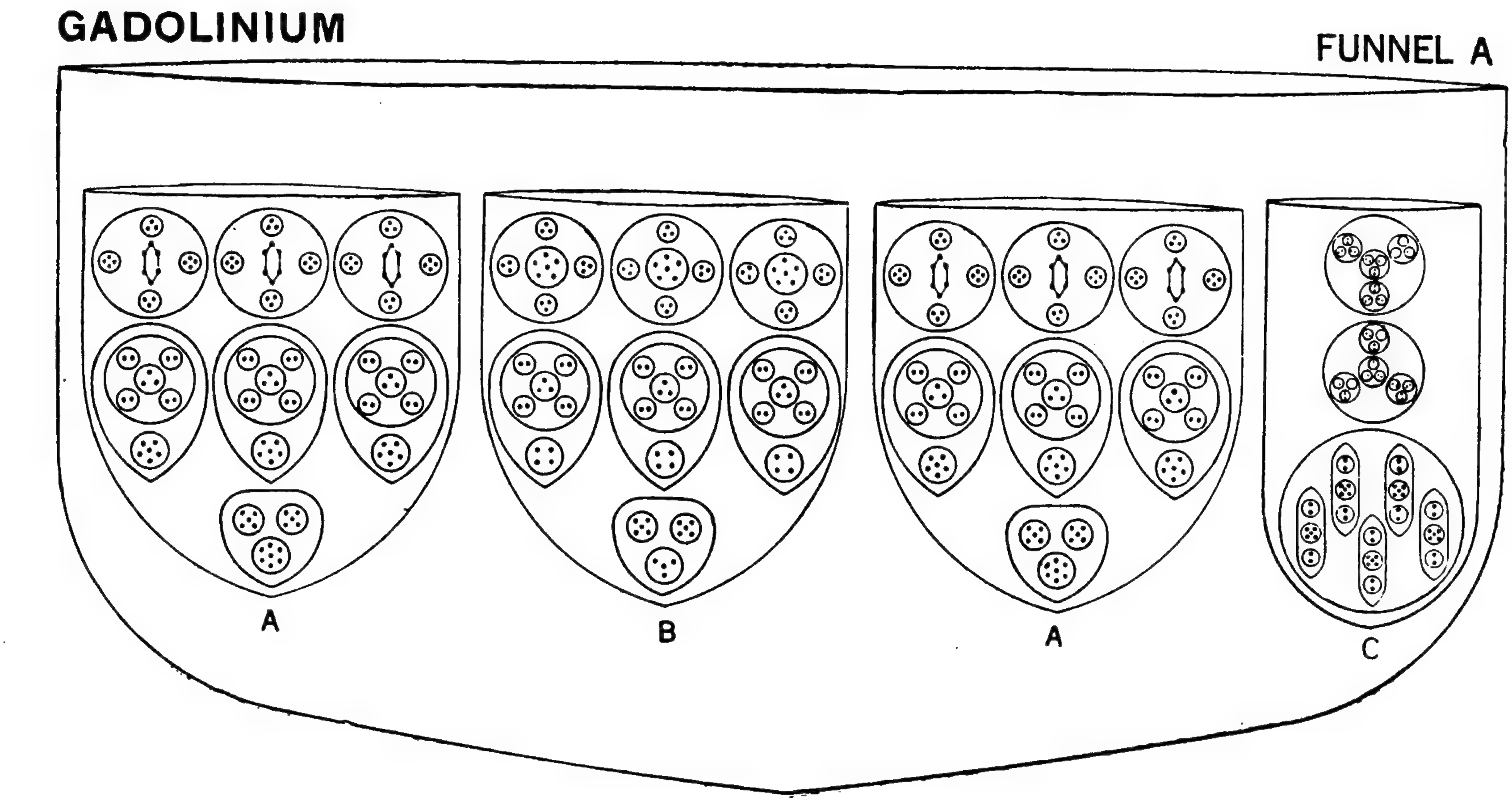


FIG. 101. GADOLINIUM, FUNNEL A

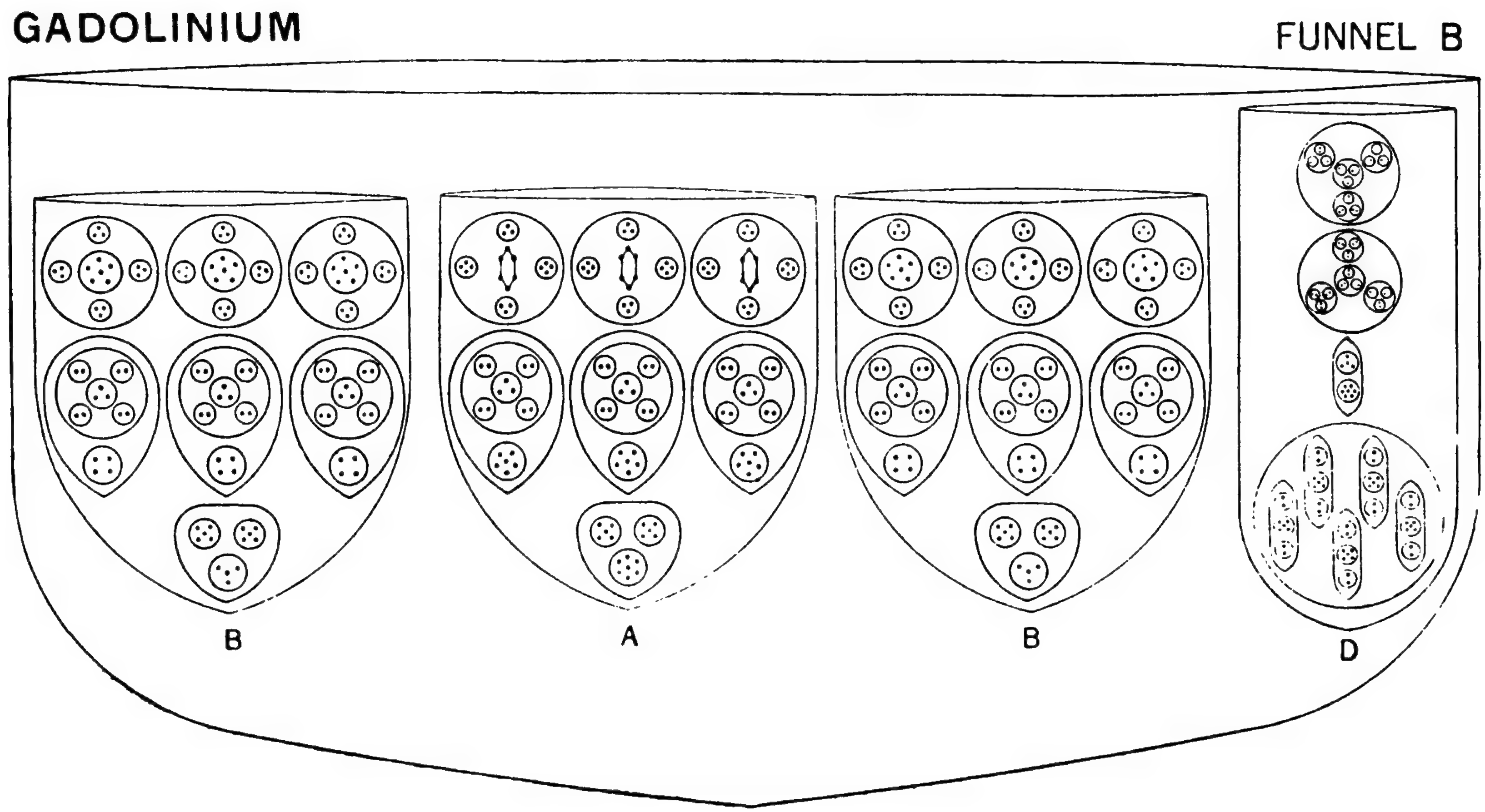


FIG. 102. GADOLINIUM, FUNNEL B

ATOMIC NO. 64.

GADOLINIUM

This element somewhat resembles Antimony.

Central globe. In this case there is a central globe. Fig. 103.

This globe is made up of five interpenetrating tetrahedrons, each with an Ad6 at its apices. This group occurs first in Neon and is identified as Ne120.

Funnels. Gadolinium has two types of funnels, each of which contains four segments. Figs. 101, 102.

In three of the funnels we find that segments A, Sb128, and B, Sb113, are identical with those of Antimony. Segment C contains one Ca45 and two N24 spheres making up 93 Anu, Gd93. In this first set of funnels there are 2A+B+C segments.

In the other set of three funnels we find one A segment, 2B, and a D segment containing Ca45, 2N24 and an additional group Mo11, making up Gd104. Thus these funnels are made up of A+2B+D.

Gadolinium = Ne120+3[2Sb128+Sb113+Gd93]
+3[Sb128+2Sb113+Gd104]

Central globe	=	120	Anu
3 funnels (2A+B+C)	=	1386	,,
3 funnels (A+2B+D)	=	1374	,,
Total	=	2880	Anu

Number weight $\frac{2880}{18}$ = 160.00

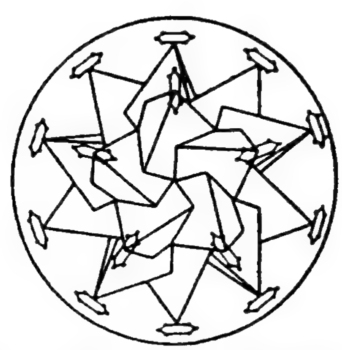


FIG. 103. GADOLINIUM CENTRE, Ne120

ATOMIC NO. 66

DYSPROSIUM

This element much resembles Gadolinium.

Central globe. The central globe is formed of the five interpenetrating tetrahedrons as in Gadolinium, Ne120. Fig. 104.

Funnels. The six funnels each contain four segments and these are of three types. Segment A is Sb128, Segment B is Sb113, Segment C is Gd93 with the addition of two Mo11 groups, making Ds115. Figs. 105, 106.

Three funnels are composed of 2A+B+C and the other three of A+2B+C.

Dysprosium = Ne120+3[2Sb128+Sb113+Ds115]
+3[Sb128+2Sb113+Ds115]

Central globe	=	120	Anu
3 funnels each 2A+B+C	=	1452	„
3 funnels each A+2B+C	=	1407	„
Total	=	2979	Anu

Number weight $\frac{2979}{18} = 165.5$

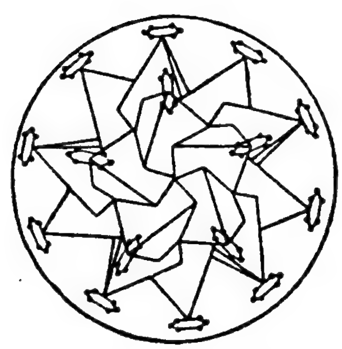


FIG. 104. DYSPROSIUM CENTRE. Ne120

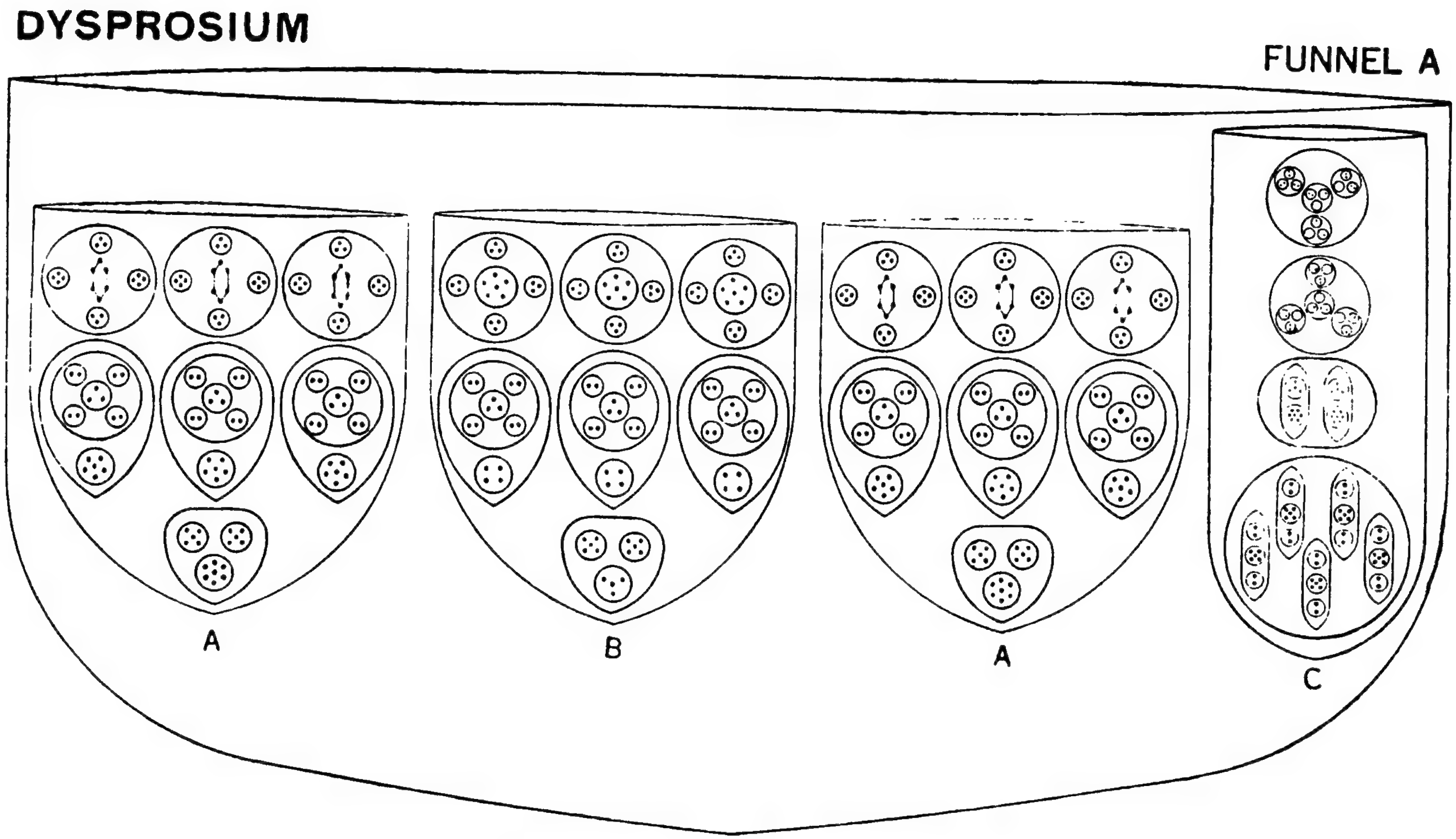


FIG. 105. DYSPROSIUM, FUNNEL A

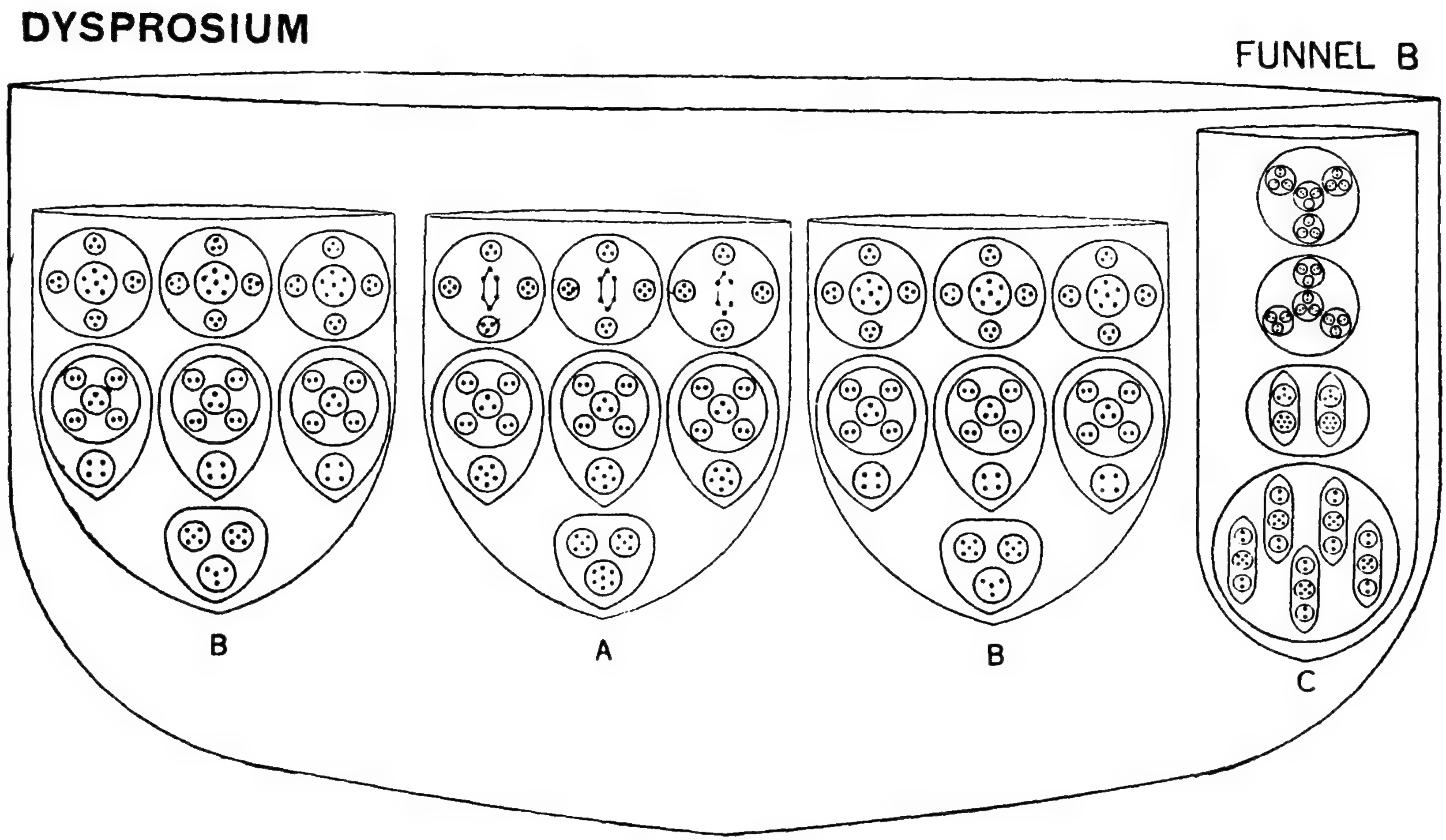


FIG. 106. DYSPROSIUM, FUNNEL B

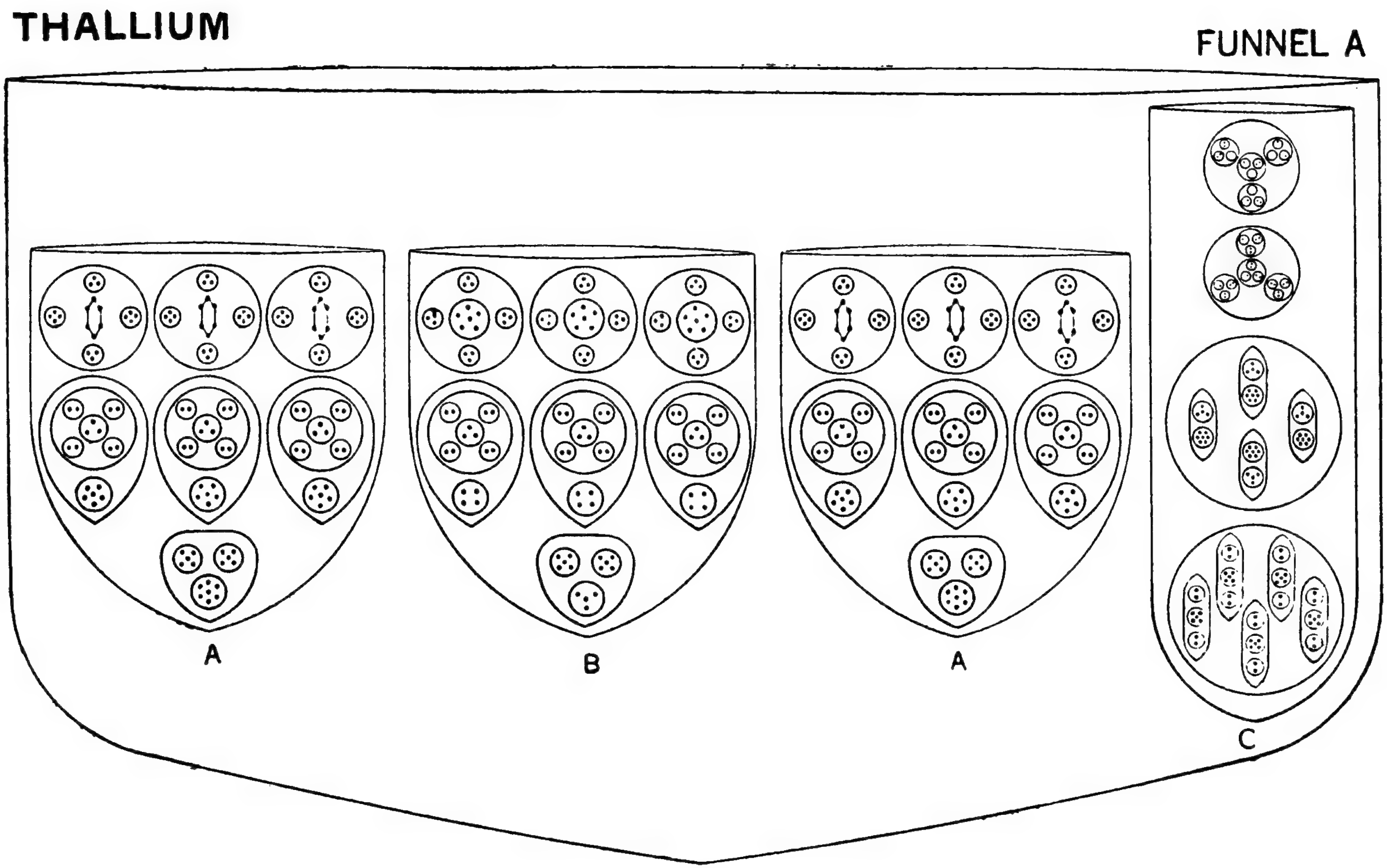


FIG. 107. THALLIUM, FUNNEL A

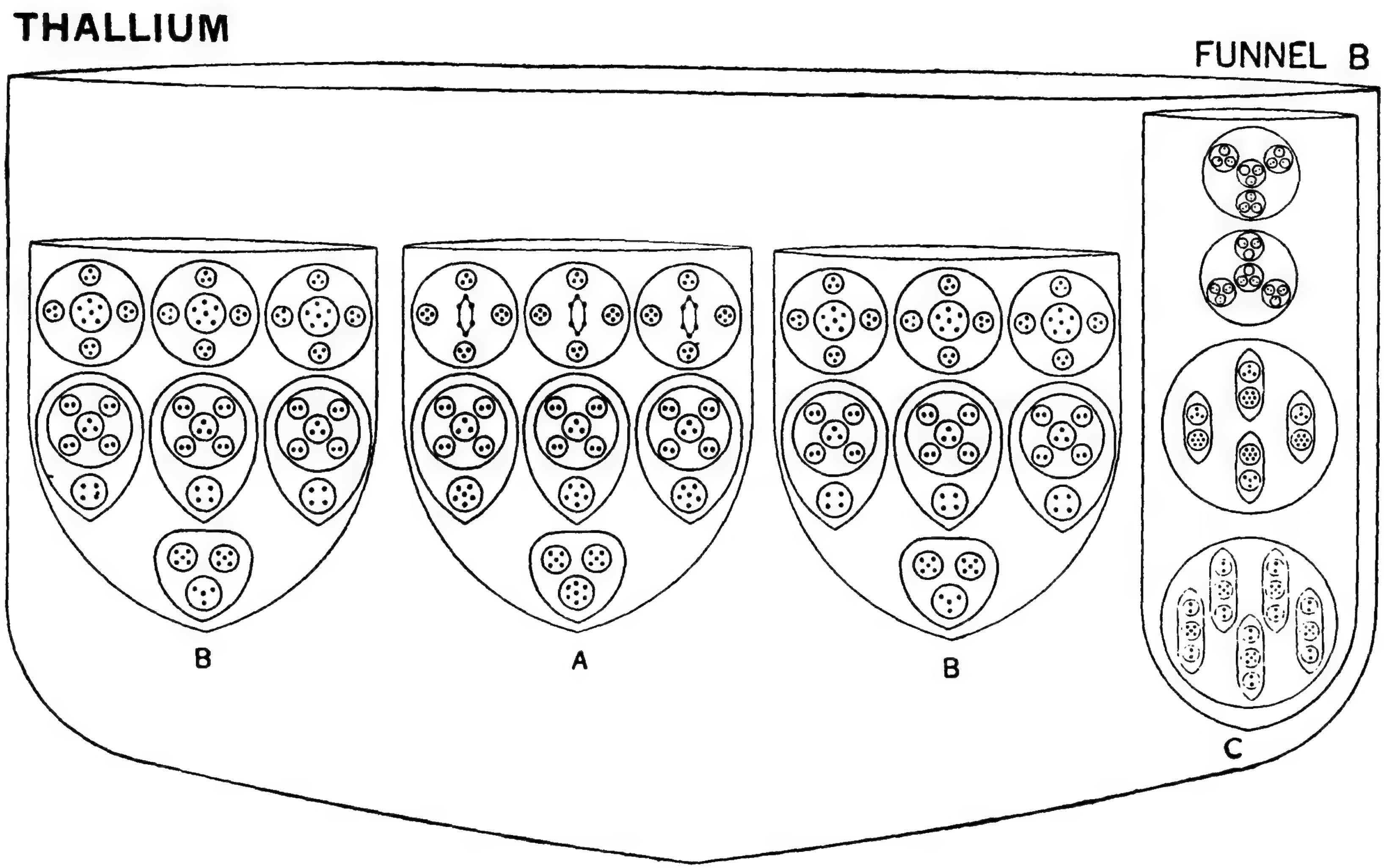


FIG. 108. THALLIUM, FUNNEL B

ATOMIC NO. 81.

THALLIUM

Central globe. There is here a central globe very similar to that in Cerium. It consists of a central group, Ce27, surrounded by 20 ovoids of 33 Anu, making 687 Anu in all. Fig. 109.

Funnels. Here again we find two types of funnels. Each funnel contains four segments made up of types A, B and C. Segment A is Sb128, segment B is Sb113, and Segment C contains Ca45, plus a sphere containing four Mo11, Tl.44, and then two N24, making Tl.137. Figs. 107, 108.

Three funnels consist of 2A+B+C and three of A+2B+C.

Thallium = Tl.687+3 [2Sb128+Sb113+Tl.137]
+3 [Sb128+2Sb113+Tl.137]

Central globe	=	687	Anu
3 funnels of 2A+B+C	=	1518	"
3 funnels of A+2B+C	=	1473	"
Total	=	3678	Anu

Number weight $\frac{3678}{18} = 204.3$

ATOMIC NO. 83.

BISMUTH

Central globe. The central globe is similar to that of Thallium, Tl.687. Fig. 109.

Funnels. Here again there are two types of funnels, each containing four segments, made up of types A, B, C and D. Segment A is Sb128, segment B is Sb113. Segment C is composed of Ca45, Mo46 and two N24 groups making 139 Anu. Segment D is part of the arm of Zirconium and contains 160 Anu. Three of the funnels contain 2A+B+C and three A+2B+D. Figs. 110, 111.

Bismuth = Tl.687+3[2Sb128+Sb113+(Ca45+Mo46+2N24)]
+3[Sb128+2Sb113+{Ti88+(Ga20+4Zr13)}]

Central globe	=	687	Anu
3 funnels 2A+B+C	=	1524	„
3 funnels A+2B+D	=	1542	„
Total	=	3753	Anu

Number weight $\frac{3753}{18} = 208.5$

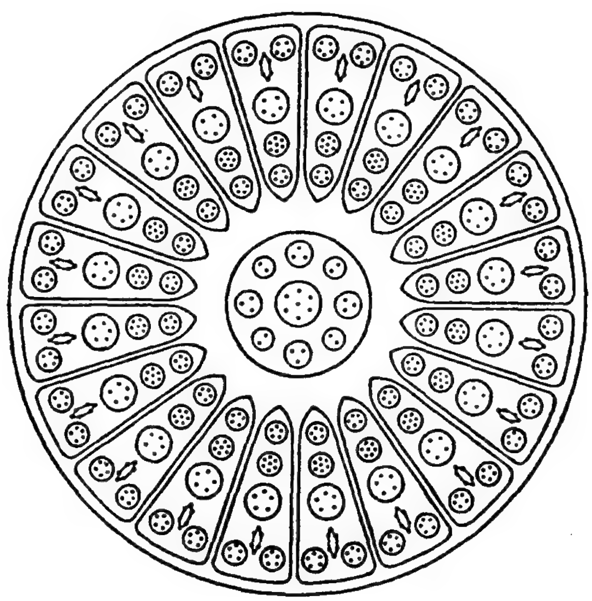


FIG. 109. THALLIUM AND BISMUTH CENTRE, Tl.687

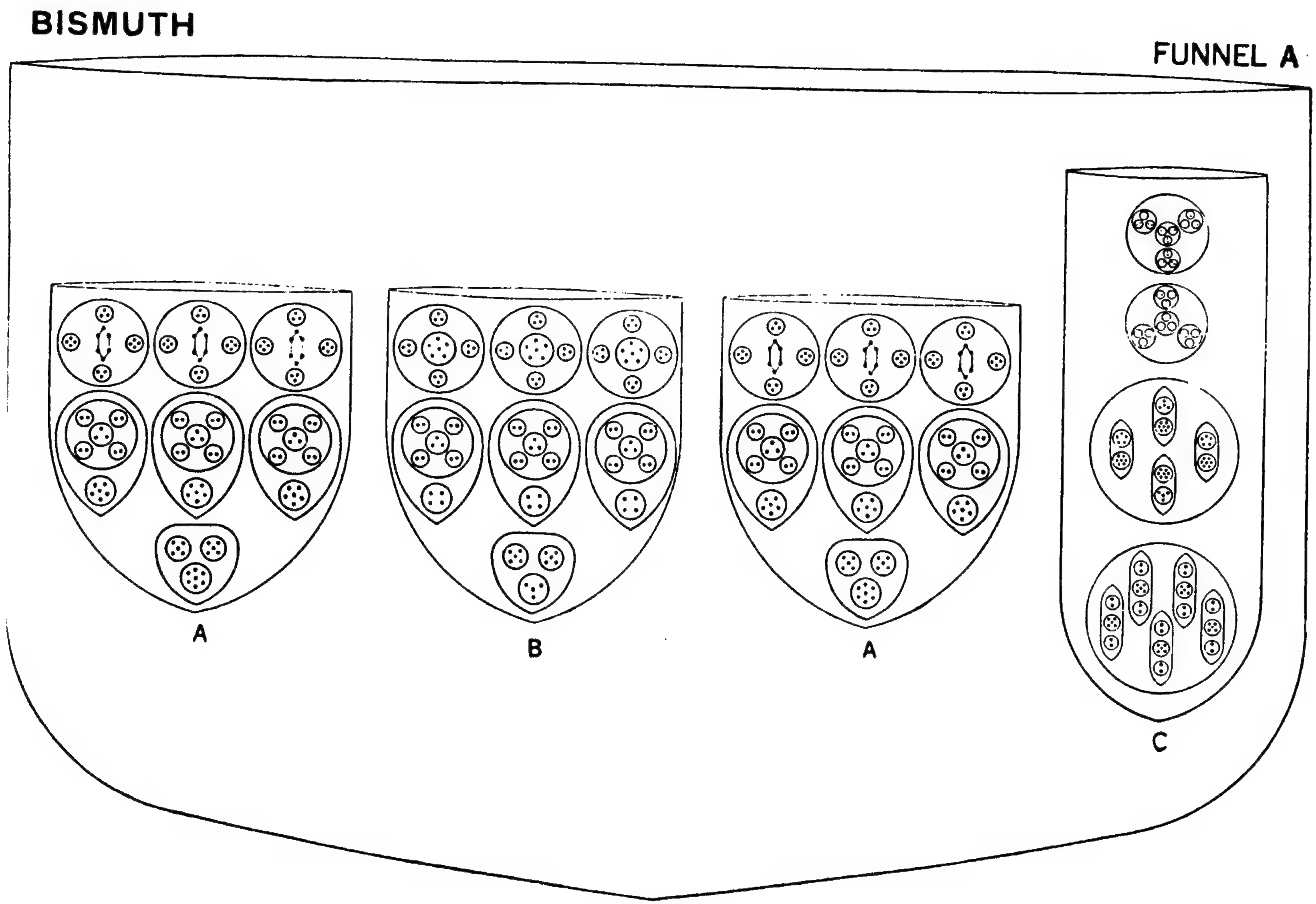


FIG. 110. BISMUTH, FUNNEL A

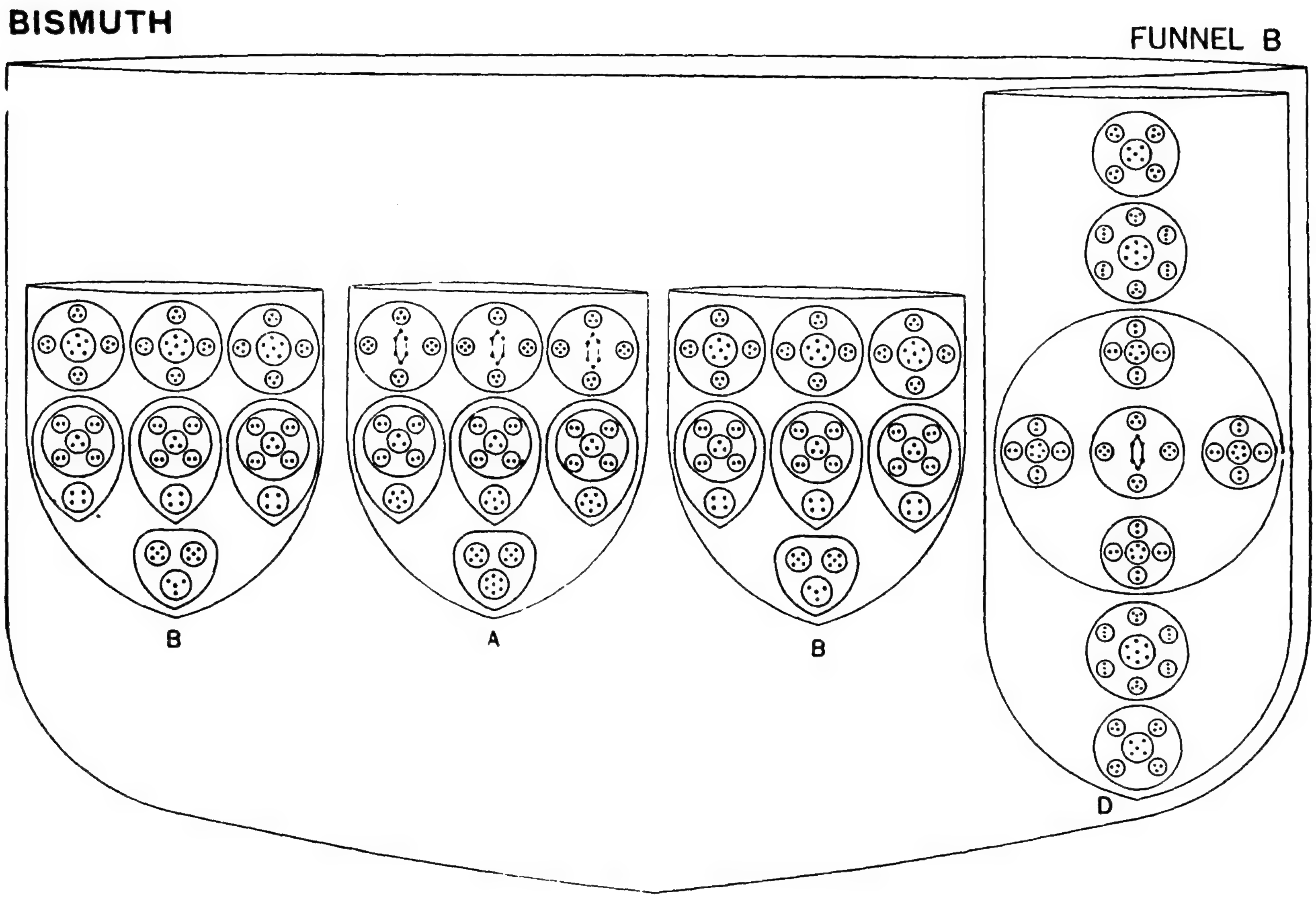


FIG. 111. BISMUTH, FUNNEL B

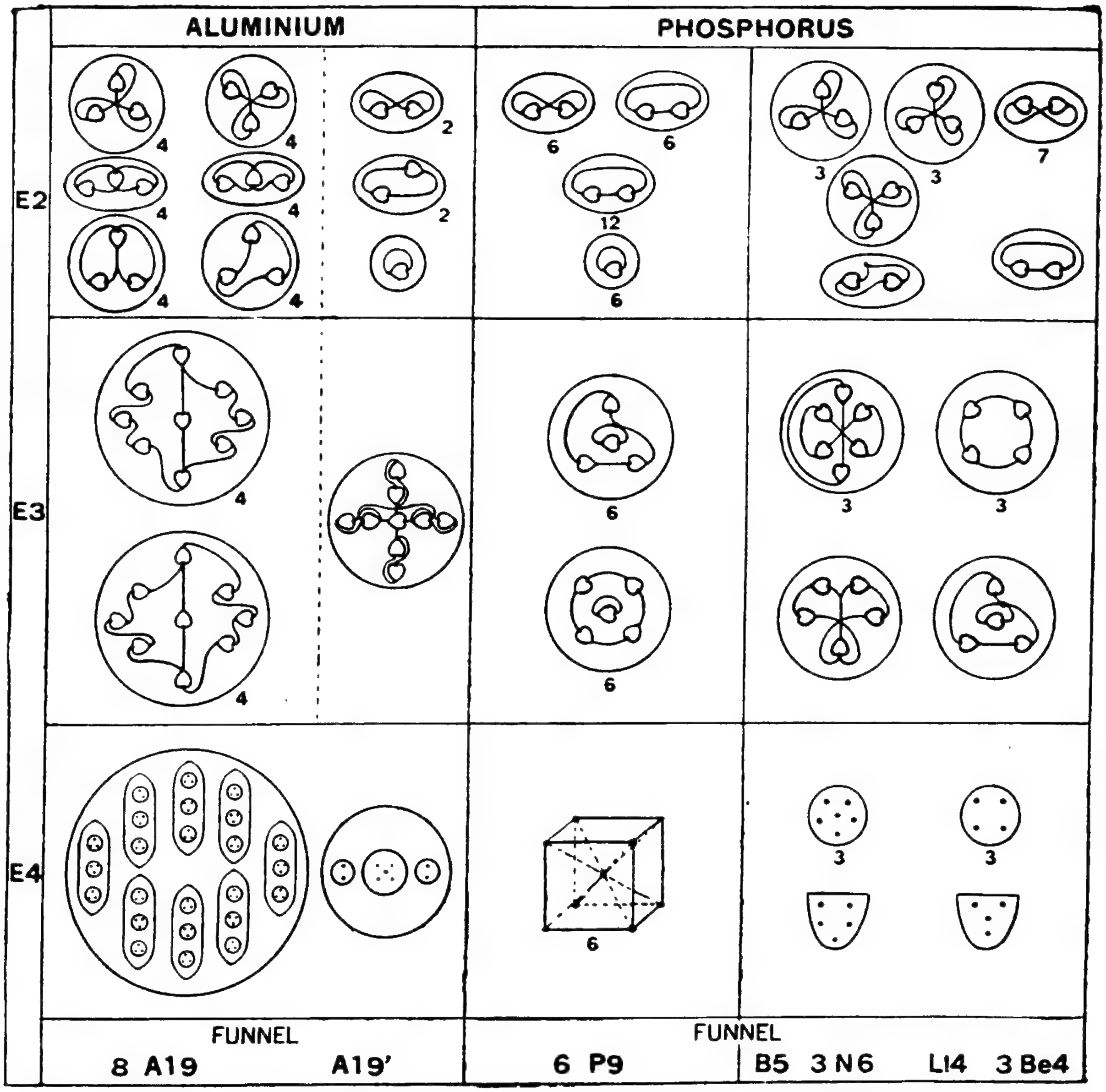


FIG. 112. DISINTEGRATION OF ALUMINIUM AND PHOSPHORUS

DISINTEGRATION OF CUBE GROUP B

DISINTEGRATION OF ALUMINIUM

The funnels separate and the contents are liberated. The eight ovoids remain together in a sphere; so two bodies from each funnel are set free on the E4 level. Fig. 112.

On the E3 level the eight ovoids are set free and become spherical, forming bodies containing 9 Anu as shown in Fig. 112.

On the E2 level each of these breaks up into three triads.

The globe from the funnel becomes a cross at the E3 stage, with one Anu from the duads in each arm in addition to its own. On the E2 level these form four duads and a unit.

DISINTEGRATION OF PHOSPHORUS

On the E4 level segment A sets free three P9 groups, three sextets, N6, and a quintet, B5. The P9 groups form a cube with one Anu at each corner and one in the centre attached to all the others. Fig. 112.

Similarly segment B, on the E4 level, liberates three P9, three quartets, Be4, and one quartet, Li4.

On the E3 level the P9 groups each form two bodies. Five of the nine Anu hold together and place themselves on the angles of a square-based pyramid; the remaining four set themselves on the angles of a tetrahedron. The other groups form three sextets, and a quintet and three ring quartets and a pyramid as shown.

On the E2 level each P9 yields 4 duads and a unit, while the other groups form triads and duads as shown.

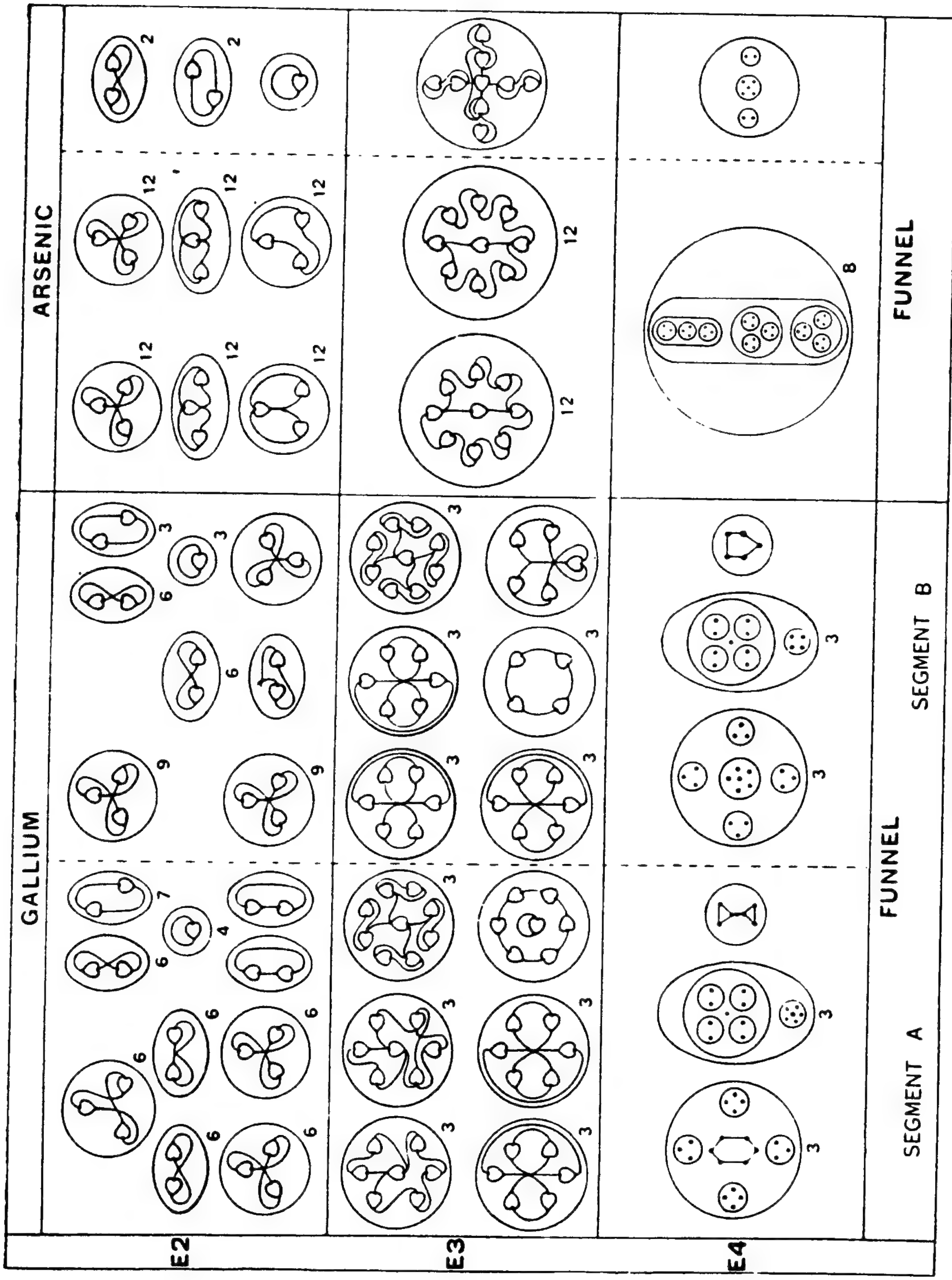


FIG. 113. DISINTEGRATION OF GALLIUM AND ARSENIC

DISINTEGRATION OF GALLIUM

In Gallium the funnels are liberated and then set free their two containing segments, each of which forms a cylinder. Thus each funnel yields two bodies at the first stage of the E4 level. This is not shown in Fig. 113. At the second stage the segments liberate their contents, each giving seven groups. Fig. 113.

Segment A. On the E4 level this gives the three Ga20, three Ga15 and the small group of 7 Anu, Ga7.

On the E3 level each Ga20 forms a sextet and two septets, the quartet and triad uniting. Each Ga15 forms a sextet and a cross with nine Anu having a duad in each arm and one Anu in the centre. The Ga7 forms a ring of six Anu with one in the centre.

On the E2 level these all break up into triads, duads and units.

Segment B. On the E4 level we find three Ga18, three Ga13 and a B5. On the E3 level each Ga18 gives three sextets, each Ga13 gives the cross of nine Anu as before and a ring quartet, and the B5 gives a quintet.

On the E2 level these act as usual, giving triads, duads and units.

DISINTEGRATION OF ARSENIC

Arsenic resembles Aluminium in having eight ovoids in its funnel. These are set free as spheres on the E4 level, as is the globe of nine Anu, Al.9'. Thus we have nine spheres on this E4 level. Fig. 113.

On the E3 level the three groups of nine Anu from the ovoids are liberated and form groups having the same design as those in Aluminium. The globe Al.9' gives a cross of nine Anu. On the E2 level triads, duads and units are formed as shown in Fig. 113.

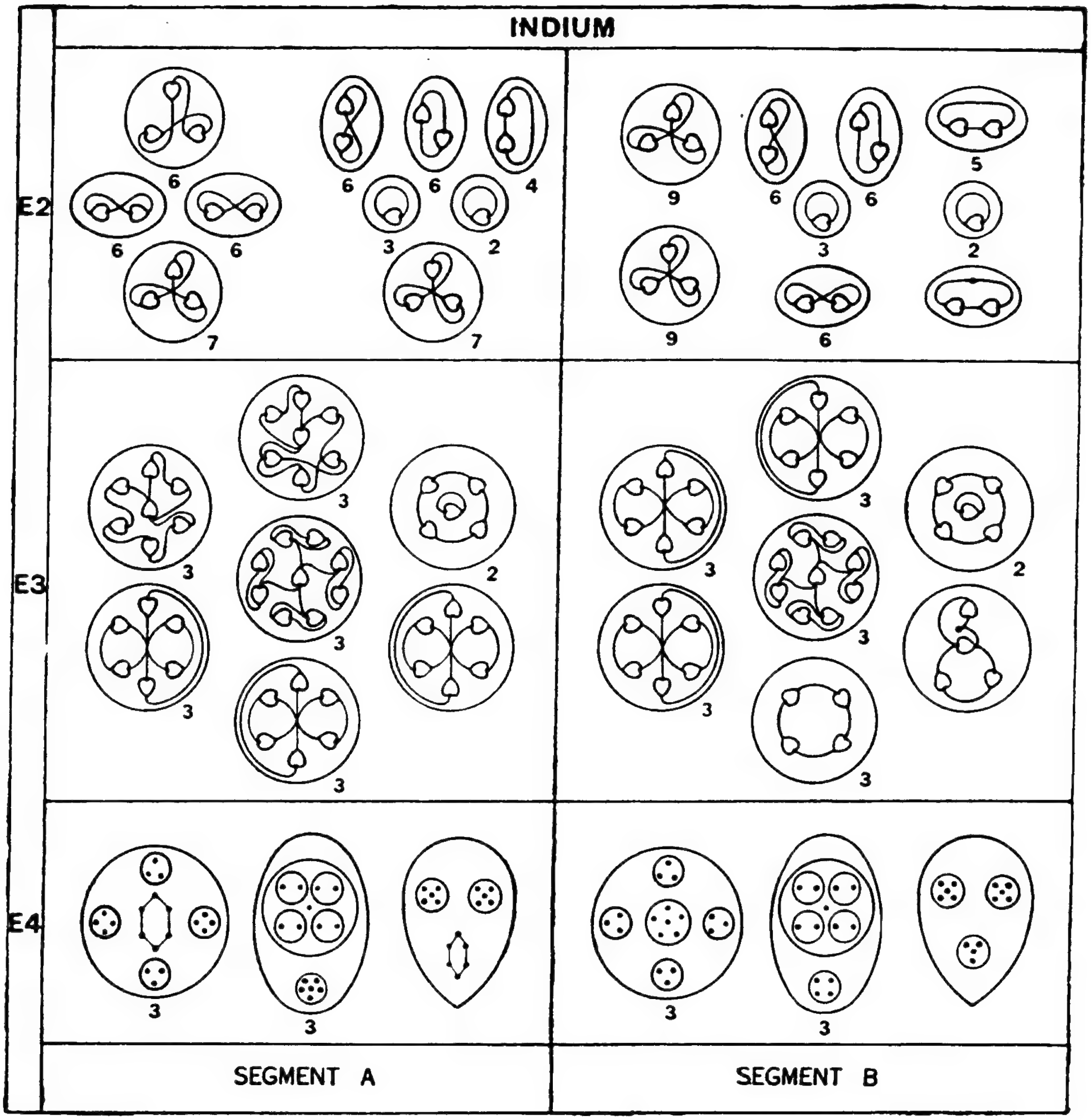


FIG. 114. DISINTEGRATION OF INDIUM

DISINTEGRATION OF INDIUM

After the funnels of Indium separate they set free their segments and these in turn liberate their contents. Each segment gives seven bodies.

Each funnel contains three segments, these being of two types, A and B. Fig. 114.

Type A. On the E4 level type A gives three Ga20, three Ga15 and an In16.

On the E3 level each Ga20 gives a sextet and two septets as before. The Ga15 also acts as in Gallium giving a sextet and a cross of nine Anu. The In16 gives a sextet and two quintets formed of a ring of four Anu with one in the centre (a square-based pyramid).

On the E2 level these form triads, duads and units.

Type B. On the E4 level we have three Ga18, three Ga13 and an In14.

On the E3 level each Ga18 gives three sextets and the Ga13 gives the cross of nine Anu and a ring quartet as in Gallium. The In14 gives a tetrahedron quartet and two quintets (square-based pyramids).

On the E2 level they give triads, duads and units as before.

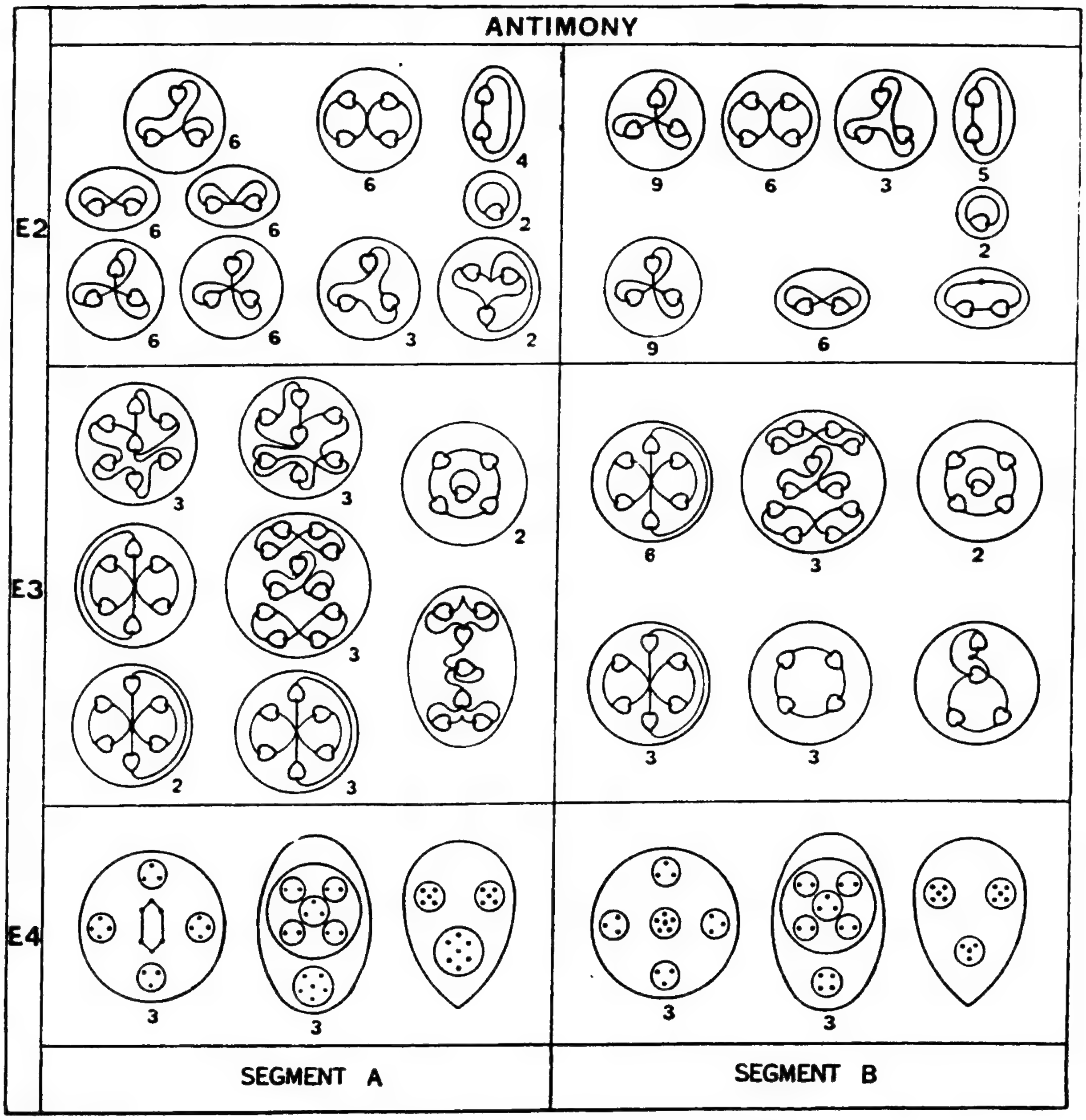


FIG. 115. DISINTEGRATION OF ANTIMONY

THE CUBE GROUP B

DISTINTEGRATION OF ANTIMONY

This element follows Gallium and Indium in its disintegration. There are three segments in each funnel and these segments are of two types. Each liberates seven bodies on the E4 level. Fig. 115.

Type A. On the E4 level we find three Ga20, three Sb17 and one Sb17'. On the E3 level each Ga20 gives a sextet and two septets. The Sb17 is like the Ga15 except that a triplet is substituted for the unit in the centre of the P9 group. This apparently throws the cross out of gear for we have a new figure of eleven Anu containing two quartets and a triplet. In addition to the body of eleven Anu each Sb17 liberates a sextet on the E3 level. The Sb17' gives a septet and two quintets of the square-based pyramid type.

On the E2 level we find quartets, triplets, duads and units.

Type B. On the E4 level we find three Ga18, three Sb15 and one In14.

On the E3 level each Ga18 gives three sextets, the Sb15 is similar to Ga13 except for the substitution of a triplet for the unit in the centre. Each Sb15 gives the group of eleven Anu as in the A type segment and a ring of four Anu. The In14 gives a tetrahedron and two quintets of the square-based pyramid form.

On the E2 level we find quartets, triplets, duads and units.

Fig. 116 shows the Cube Group B in a condensed form, from which the relationships in the group can be studied.

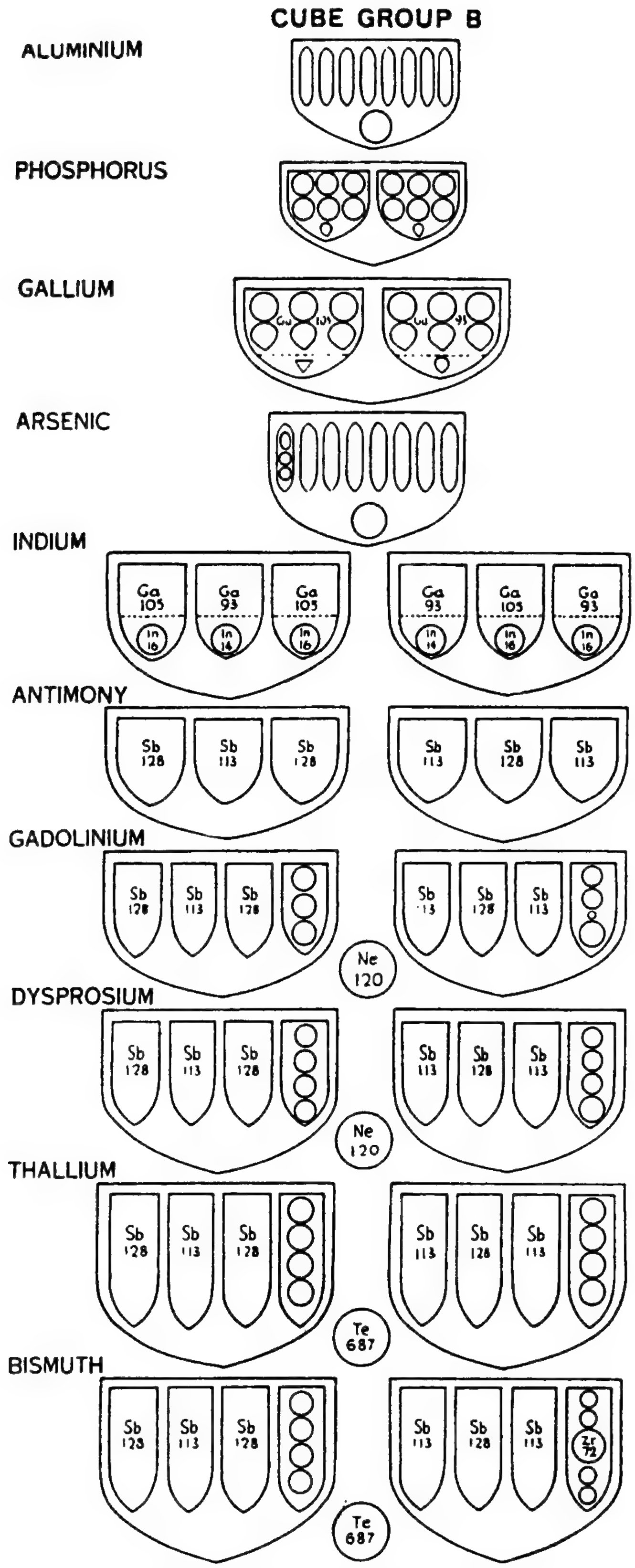


FIG. 116. CUBE GROUP B

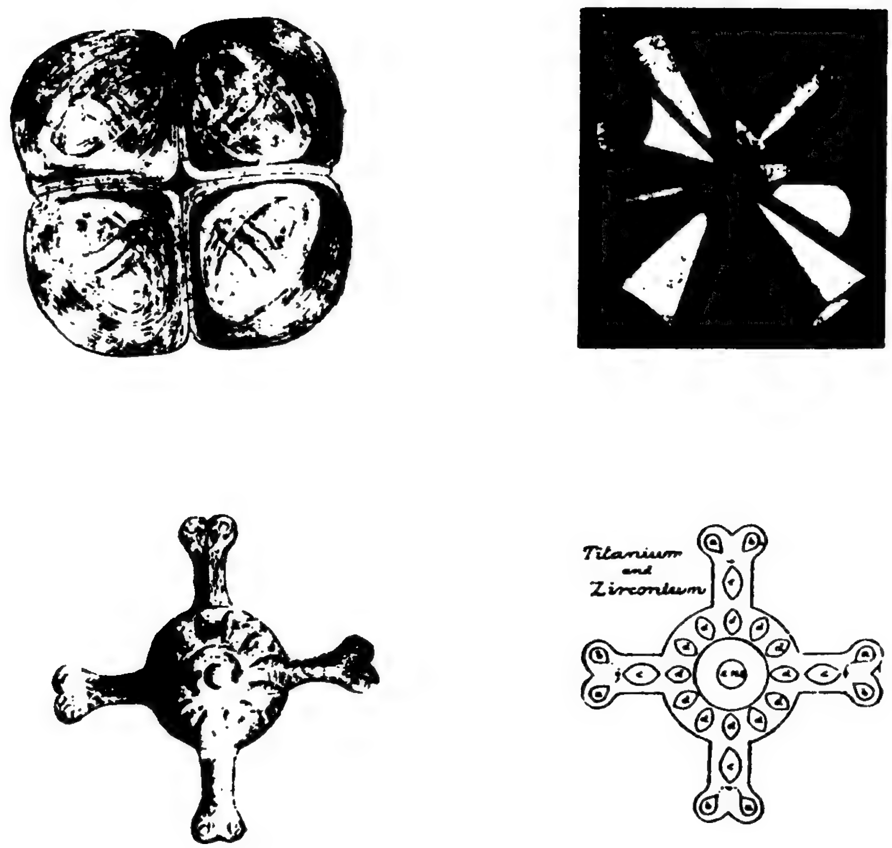


FIG. 117. TYPES OF OCTAHEDRONS

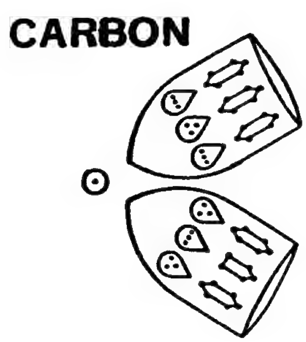


FIG. 118. TWO FUNNELS OF CARBON WITH LINKING ANU.

CHAPTER IX

THE OCTAHEDRON GROUP A

THIS group is a very interesting one, containing as it does the element Carbon, so important in organic chemistry. The members of the group occur at the extreme limits of the left-hand swing of the pendulum. Their characteristic form is that of an octahedron, rounded at the angles and a little depressed between the faces in consequence of the rounding. In fact, it was not at first recognized as an octahedron, and was called the " corded bale ".

All these elements are tetravalent and have eight funnels opening on the eight faces of the octahedron. Here, as usual, we find that the number of funnels is twice the valence.

The conception of the four valencies of Carbon pointing to the four corners of a tetrahedron, so much used in organic chemistry, at once comes to the mind. It is obvious that if four of the eight funnels are used, these would give forces pointing in the required directions in space. This subject is further illustrated in the descriptions of the Carbon compounds in Chapter XIII.

ATOMIC NO.	ANU	ELEMENT	CENTRE	FUNNELS
6	216	Carbon	4	4 C27+4C26
22	864	Titanium	(Ne120+8) +12Ti14	4 (Ti88+C27+C26+1)
40	1,624	Zirconium	(Ne120+8) +12Zr36	4 (Zr212+C27+C26+1)
58	2,511	Cerium	Ce667	4 (Zr212) 4 (Ca160+Ce36+C27+C26)
72	3,211	Hafnium	Hf747	4 (Zr212+4Hf36) 4 (Ca160+Ce36+C27+C26 +Ge11)
90	4,187	Thorium	Lu819	4 (Zr212+Sb128+Ac116) 4 (Ca160+Mo46+2Li63+C27 +C26+1)

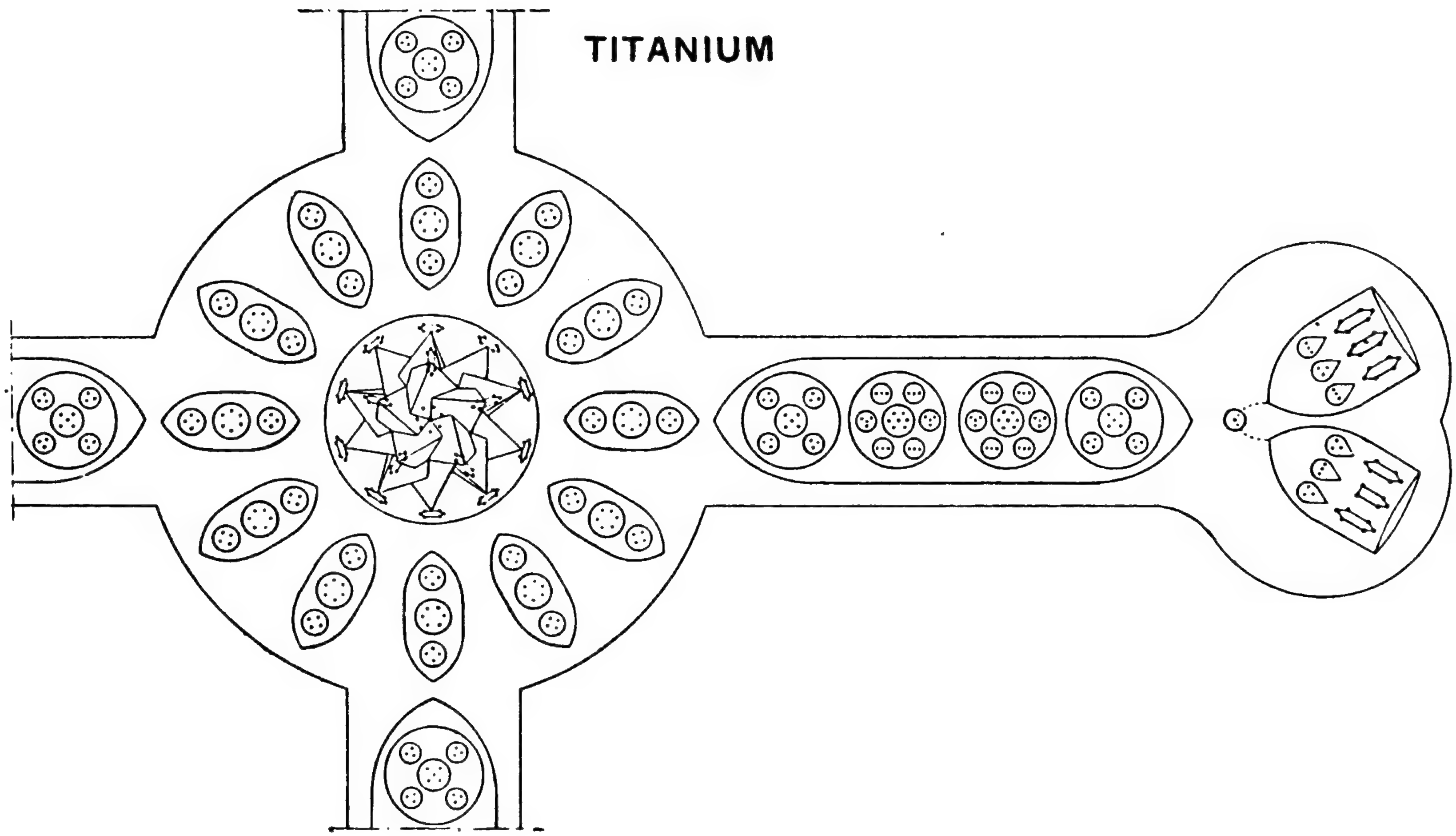


FIG. 119. TITANIUM

ATOMIC NO. 6.

CARBON

Carbon gives us the fundamental octahedron form, which becomes so marked in Titanium and Zirconium.

Central globe. In the centre of the octahedron is a globe containing four Anu, each within its own wall; these lie on the dividing lines of the faces and each holds a pair of funnels together. It seems as though this Anu had been economically taken from one Ad6 in the funnels, to form the link. Fig. 118.

Funnels. The funnels are in pairs, one of each pair showing three " cigars " and having as its fellow a funnel in which the middle " cigar " is truncated, having lost one Anu. Each Ad6 has a leaf-like body at its base, the six together making up one Hydrogen atom.

Carbon = 4+4C27+4C26

Centre	=	4	Anu
4 funnels of 27 Anu	=	108	"
4 funnels of 26 Anu	=	104	"
Total	=	216	Anu

$$\text{Number weight } \frac{216}{18} = 12.00$$

ATOMIC NO. 22

TITANIUM

Central globe. The central body is made up of the five interlaced tetrahedrons, Ne120, with a ring of seven Anu round an eighth, that forms the minute centre of the whole. Into this elaborate body one hundred and twenty-eight Anu are built.

Round this centre comes a ring of twelve ovoids each holding within itself fourteen Anu, distributed among three contained spheres, two quartets and a sextet. This is a new device for crowding in material. Fig. 119.

Funnels. Titanium has a complete Carbon atom distributed over the ends of its four arms, a pair of funnels with their linking Anu being seen in each. Then, in each arm, comes the elaborate body Ti88, with its eighty-eight Anu.

The protrusion of the arms in Titanium and Zirconium suggests the old Rosicrucian symbol of the cross and rose, but since they show at their ends the eight carbon funnels with their characteristic contents they justify their relationship.

Titanium = (Ne120+8)+12Ti14+4(Ti88+C27+C26+1)

Central globe	=	128	Anu
Ring	=	168	"
4 arms	=	352	"
8 funnels	=	216	"
Total	=	864	Anu

$$\text{Number weight } \frac{864}{18} = 48.00$$

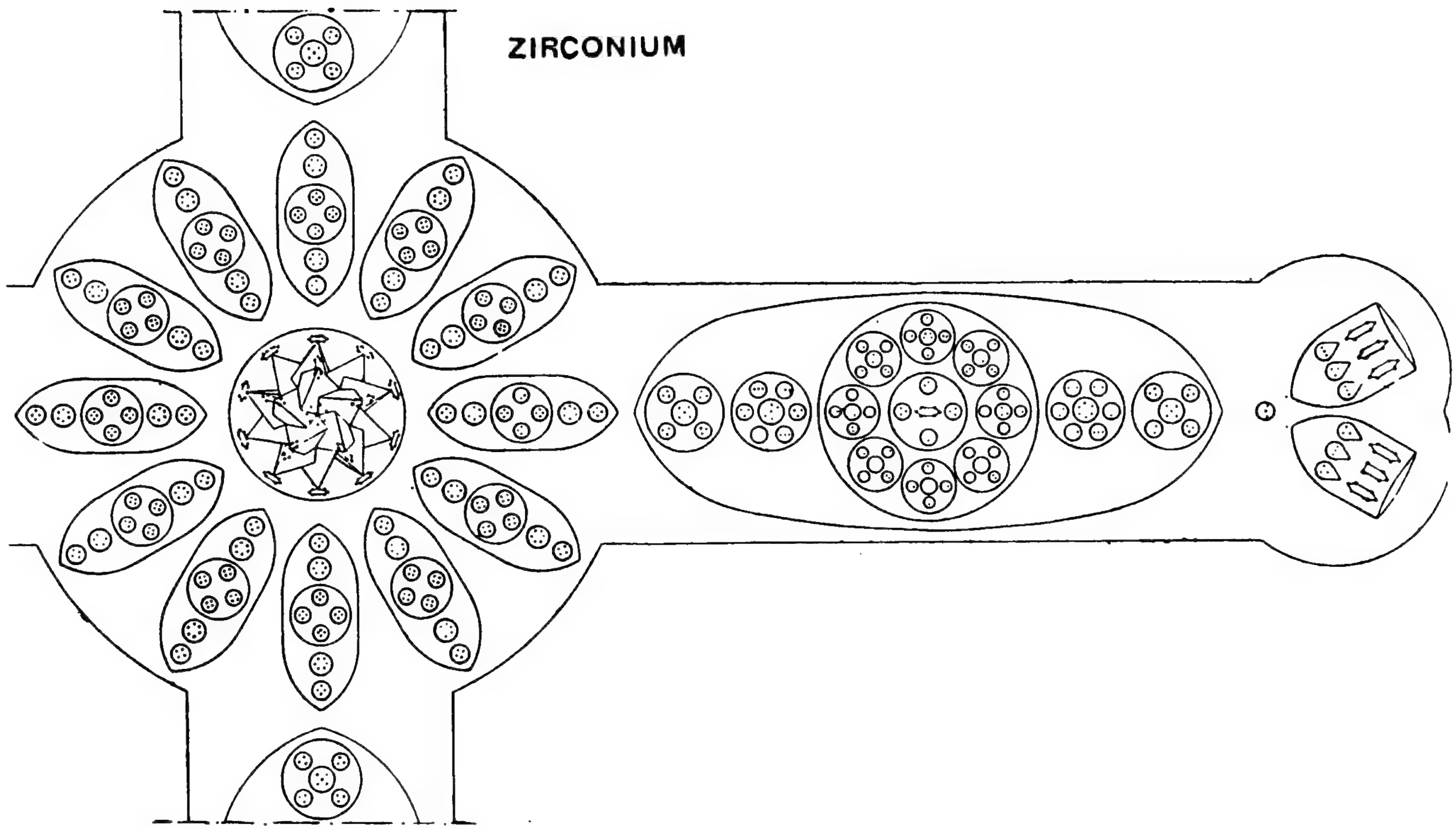


FIG. 120. ZIRCONIUM

ATOMIC NO. 40.

ZIRCONIUM

Zirconium has a similar design to Titanium, the Carbon atom being similarly distributed and the central body identical in pattern. Fig. 120.

Central globe. The central globe resembles that of Titanium, being Ne120+8, but the 12 ovoids in the ring are more elaborate, each containing 36 Anu instead of 14.

Funnels. The ovoid in the arm of Zirconium shows no less than thirteen secondary globes, four of which make Ti88. These in turn contain altogether 69 smaller spheres. So we have 212 Anu in each arm, Zr212. A whole Carbon atom is distributed over the ends of the four arms, as in Titanium.

In this way the clever builders have piled up in Zirconium no less than 1,624 Anu.

Zirconium = (Ne120+8)+12Zr36+4(Zr212+C27+C26+1)

Central globe	=	128	Anu
Ring	=	432	,,
4 arms of 212 Anu	=	848	,,
8 funnels	=	216	,,
Total	=	1624	Anu

Number weight $\frac{1624}{18} = 90.22$

ATOMIC NO. 58.

CERIUM

This element has many of the characteristics of Carbon, Titanium and Zirconium, but the projecting arms which give Titanium and Zirconium the form of a cross are so masked by other projections that they now take their place as ordinary funnels, and we have once more the octahedron which in appearance resembles a corded bale.

Central globe. The central globe is formed of a central group, Ce27, surrounded by 20 ovoids Ce32. These are arranged on the pattern of the Radium centre. This group, Ce667, is also found as the centre of Neodymium in the Tetrahedron Group A. Fig. 121.

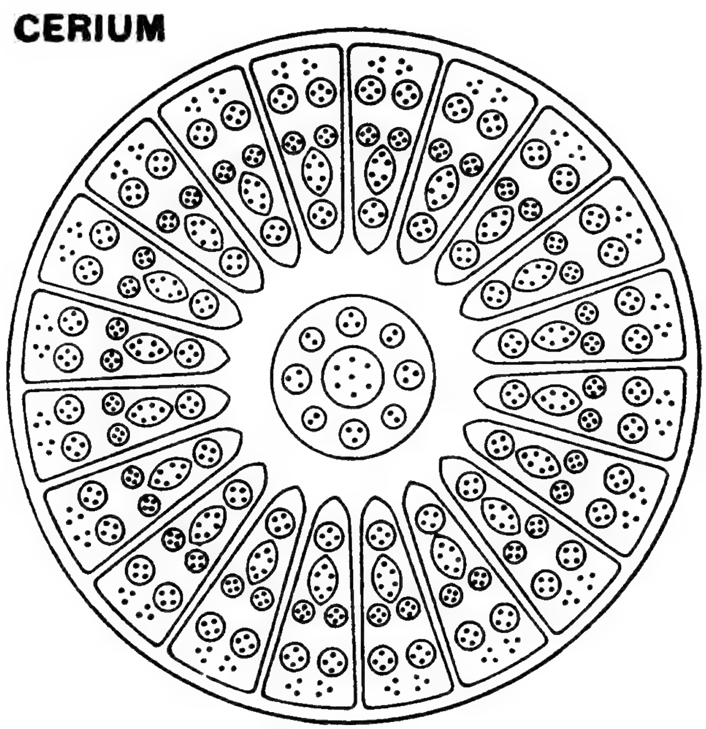


FIG. 121. CERIUM CENTRE, Ce667

Funnels. Cerium has two types of funnels, four of each type. Fig. 122.

Type A contains the arm of Zirconium, Zr212.

Type B is partly made up of constituents from Calcium. First Ca45, then Ca70, and then another Ca45. Next comes a new sphere, Ce36, containing 2 Mo11 and 2 I.7. At the mouth come two Carbon funnels. The characteristic Carbon atom thus appears as usual divided into four parts, though it is only in four out of the eight funnels. Oddly enough its little funnels have lost their linking Anu.

Cerium = Ce667+4Zr212+4 (Ca160+Ce36+C27+C26)

Central globe	=	667	Anu
4 funnels of 212 Anu	=	848	„
4 funnels of 249 Anu	=	996	„
Total	=	2511	Anu

Number weight $\frac{2511}{18} = 139.50$

CERIUM

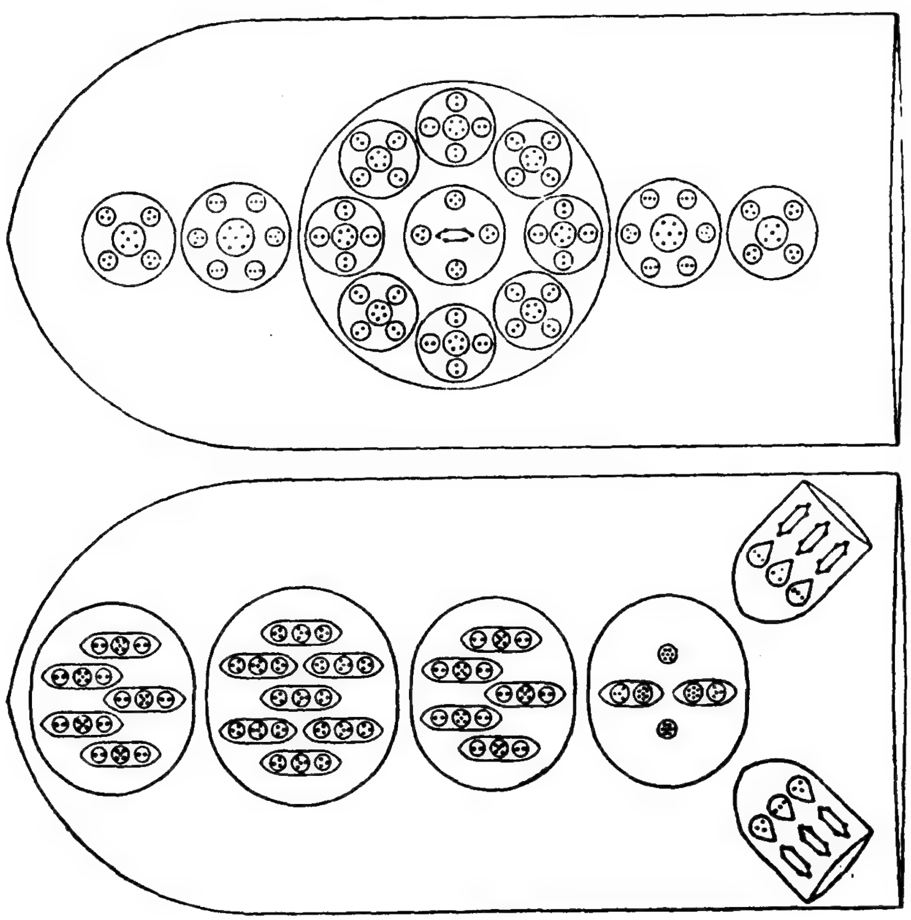


FIG. 122. CERIUM. FUNNELS A AND B

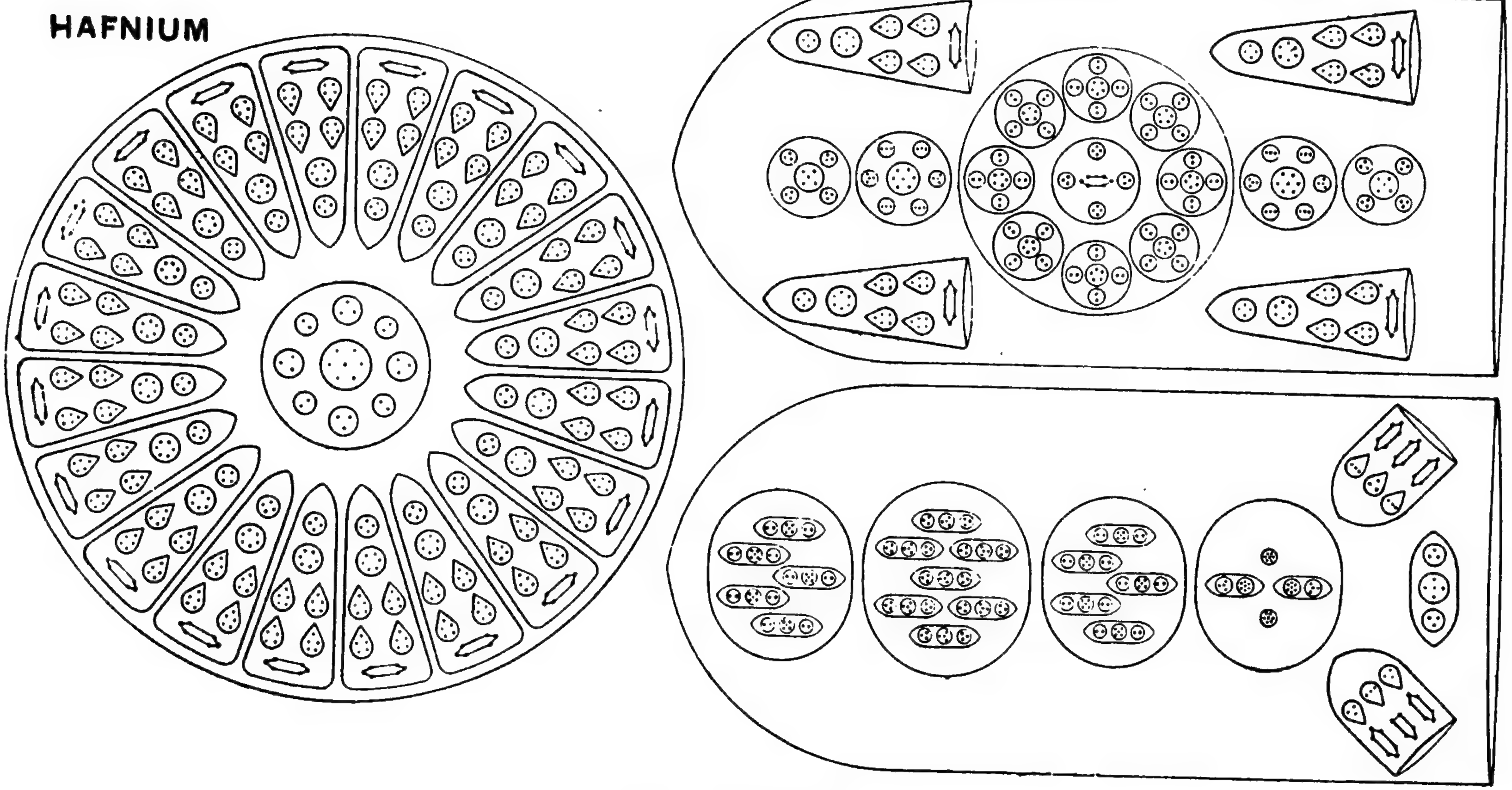


FIG. 123. HAFNIUM

ATOMIC NO. 72.

HAFNIUM

This element is also an octahedron. It is similar to Cerium in having two types of funnels. Fig. 123.

Central globe. The central globe is formed on the same pattern as that of Cerium. The central sphere is Ce27, and this is surrounded by 20 ovoids. These ovoids are each of 36 Anu, Hf36. The total number of Anu in the central globe is 747, Hf747.

Funnels. Four funnels are of one type and four of another.

Type A. These four funnels contain the Zr212 group, but four ovoids Hf36, similar to those in the central globe, are added. This makes a total of 356 Anu.

Type B. These funnels are very similar to those in Cerium. We have first the Ca160, next the Ce36 group, and then the two funnels of Carbon, still without their linking Anu. In addition a small ovoid, Ge11, containing two triplets and a quintet, floats at the mouth of the funnel. The total number of Anu is 260.

Hafnium = Hf747+4(Zr212+4Hf36)+4(Ca160+Ce36+C27+C26+Ge11)

Central globe	=	747	Anu
4 funnels A	=	1424	"
4 funnels B	=	1040	"
Total	=	3211	Anu

Number weight $\frac{3211}{18} = 178.38$

ATOMIC NO. 90.

THORIUM

This element reproduces the features of Cerium while adding to them. Oddly enough, the Carbon atom has here resumed the links which it lost in Cerium and Hafnium. The Lithium spikes are here again, brought over presumably from Actinium, but as Thorium is an octahedron there is now room for them in the funnels. The special adaptation of the Antimony funnels has evidently come along the spiral from Actinium also, and the central sphere is Lu819. Fig. 124.

Central globe. This is the Lu819 which is used in so many elements, including Radium and Uranium. It is formed from the Ce27 group at the centre and 24 ovoids of Ba33.

Funnels. The eight funnels are of two types, four of each.

Type A contains the Zr212 and adds Sb128 and the group Sb113+3, or Ac116, which occurs in Actinium. The total contains 456 Anu. Fig. 125.

Type B is formed of three groups. First a large group containing Ca160, Mo46 and ½ C. (The Carbon funnels have their linking Anu in this case.) Then, on either side of the large group, we find a Lithium spike, 2Li63. The total contains 386 Anu. Fig. 126.

Thorium = Lu819+4(Zr212+Sb128+Ac116)+4(Ca160+Mo46+C27+C26+1+2Li63)

Central globe	=	819	Anu
4 funnels A	=	1824	"
4 funnels B	=	1544	"
Total	=	4187	Anu

Number weight $\frac{4187}{18} = 232.6$

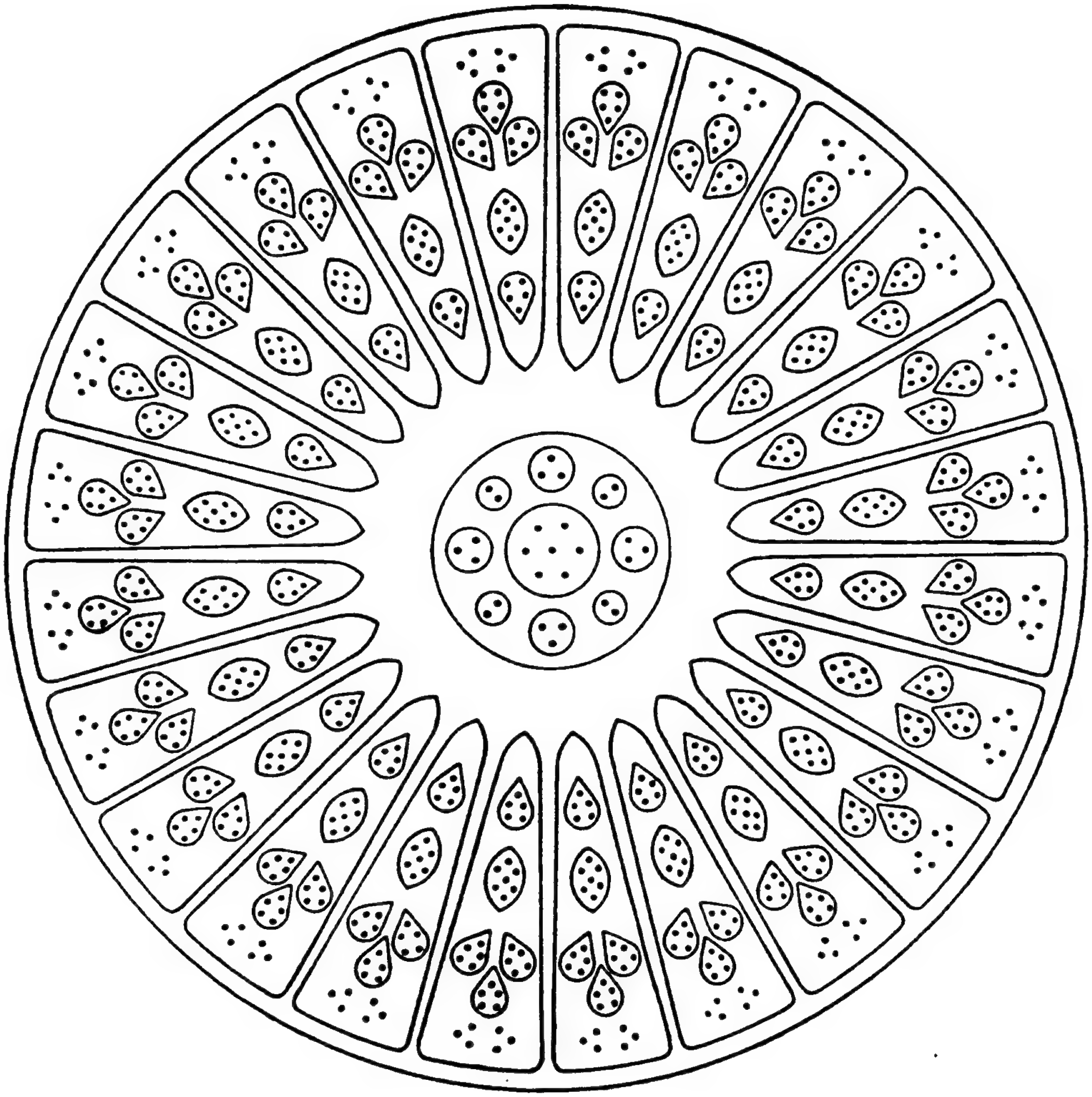


FIG. 124. THORIUM CENTRE, Lu819

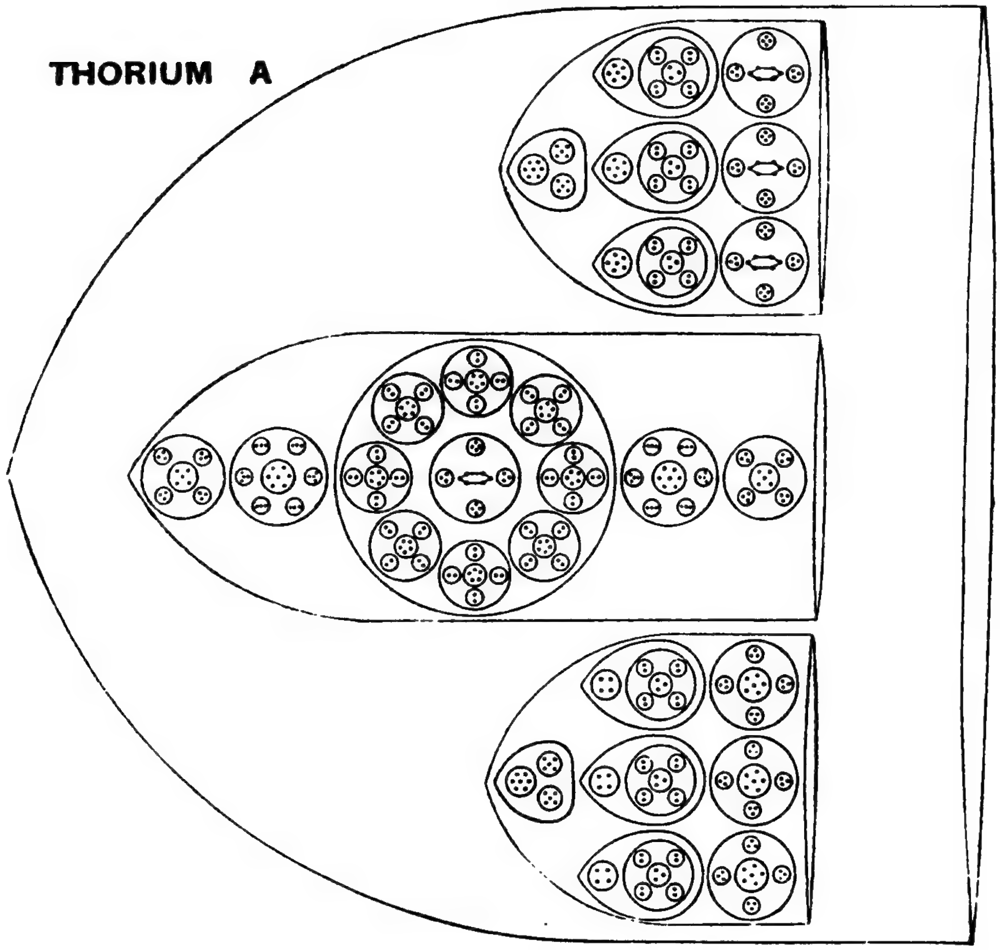


FIG. 125. THORIUM FUNNEL A

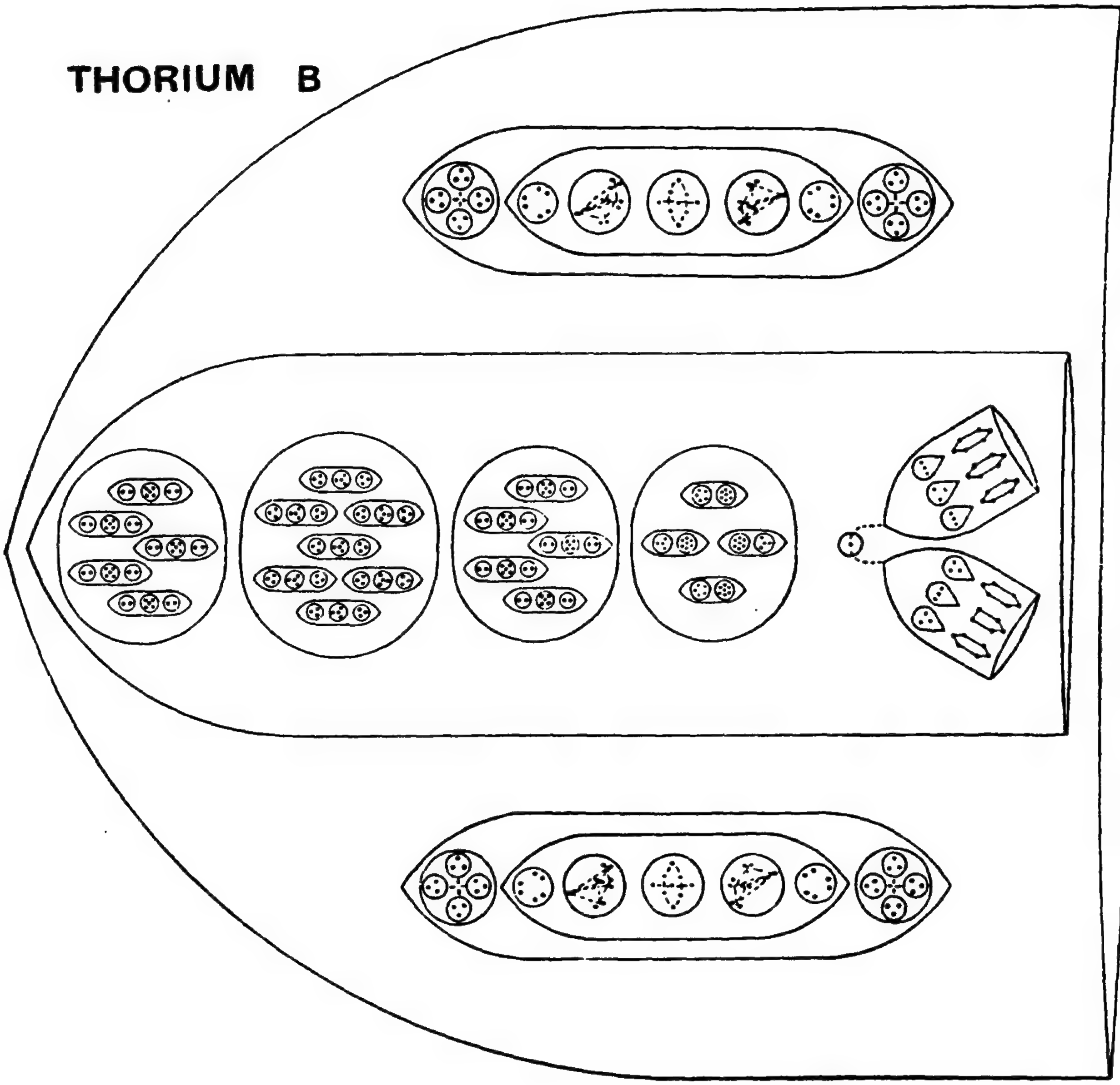


FIG. 126. THORIUM, FUNNEL B

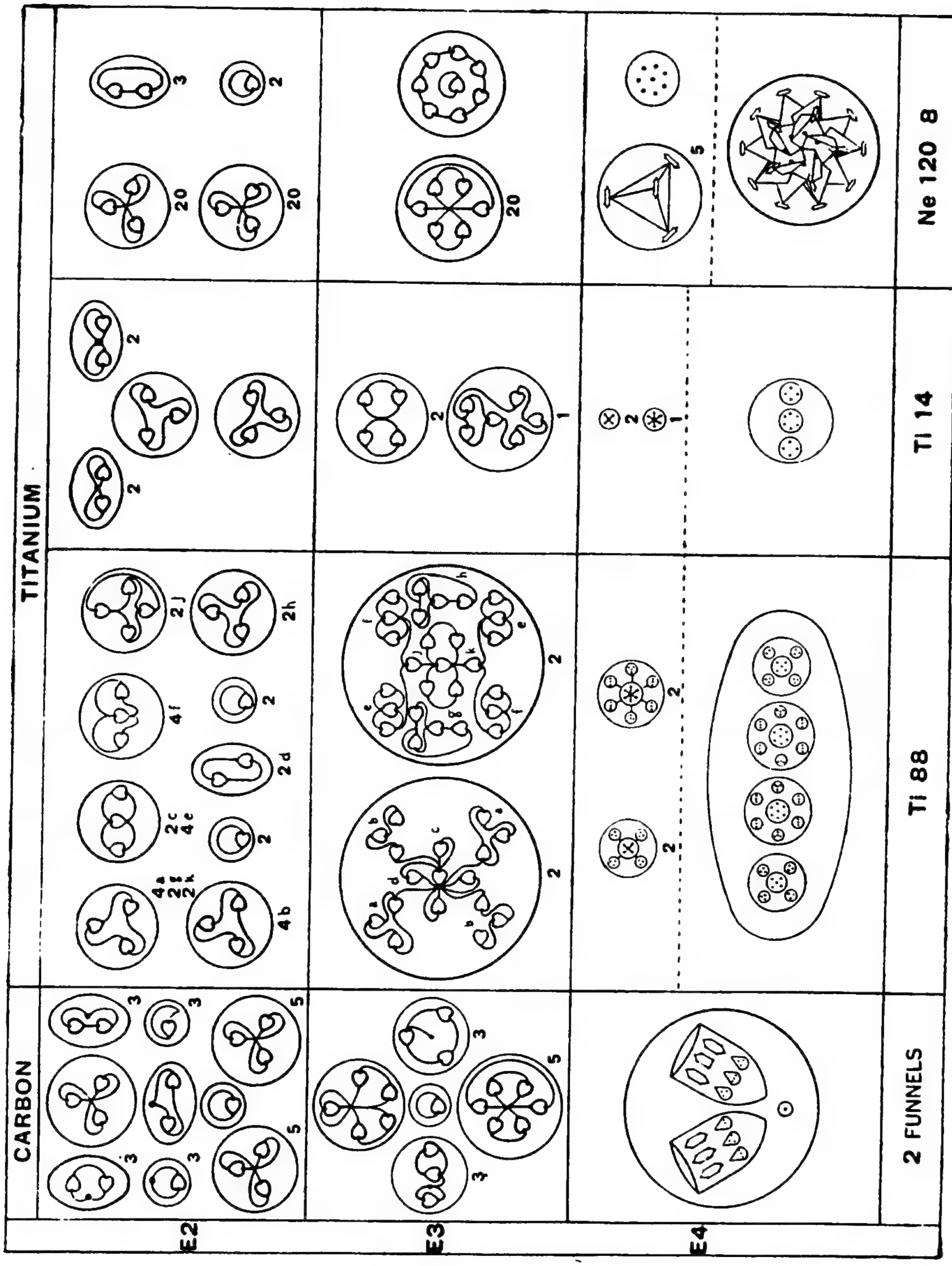


FIG. 127. DISINTEGRATION OF CARBON AND TITANIUM

DISINTEGRATION OF OCTAHEDRON GROUP A

DISINTEGRATION OF CARBON

Carbon is the typical octahedron, and a clear understanding of this element will enable us to follow easily disintegration of the various members of these groups. Fig. 127.

On the E4 level the atom breaks up into four spheres each consisting of a pair of funnels connected by a single Anu.

On the E3 level the five Ad6 groups give the usual sextets and the truncated 'cigar' of five Anu forms a quintet. The leaves yield two forms of triplets and the unit remains alone.

On the E2 level the sextets each give two triplets, the quintet a triplet and a duad; the triplets give duads and units and the single unit remains free.

DISINTEGRATION OF TITANIUM

On the E4 level this element first breaks up into its constituent parts. Each arm of the cross gives the pair of funnels with the linking Anu as in Carbon, and an ovoid, Ti88. Fig. 127.

The ring liberates the twelve spheres, Ti14, and the central globe, Ne120+8, is also set free.

At the second stage on the E4 level the ¼ C group remains together, as in Carbon, but the other groups break up still further as shown in Fig. 127.

The ovoid, Ti88, gives four globes of two types.

The Ti14 spheres each yield three smaller spheres.

The central globe gives five tetrahedrons, 5Ad24, and a group of eight Anu from the centre. These make a ring of seven Anu round a central one.

Thus on the E4 level we get 62 groups. The four ¼ C, 16 spheres from the four arms, 36 spheres from the ring and 6 bodies from the central globe.

On the E2 and E3 levels the bodies behave as shown in Fig. 127. The funnels act as in Carbon; Ti88 yields star-like and cruciform bodies on the E3 level, and simple triplets, duads and units on the E2. Each Ti14 gives a sextet and two quartets on the E3 level and triplets and duads on the E2 level.

The central sphere behaves as in Neon and Occultum, while the group of eight Anu forms a ring of seven Anu with one in the centre on the E3 level, and breaks up into duads and units on the E2.

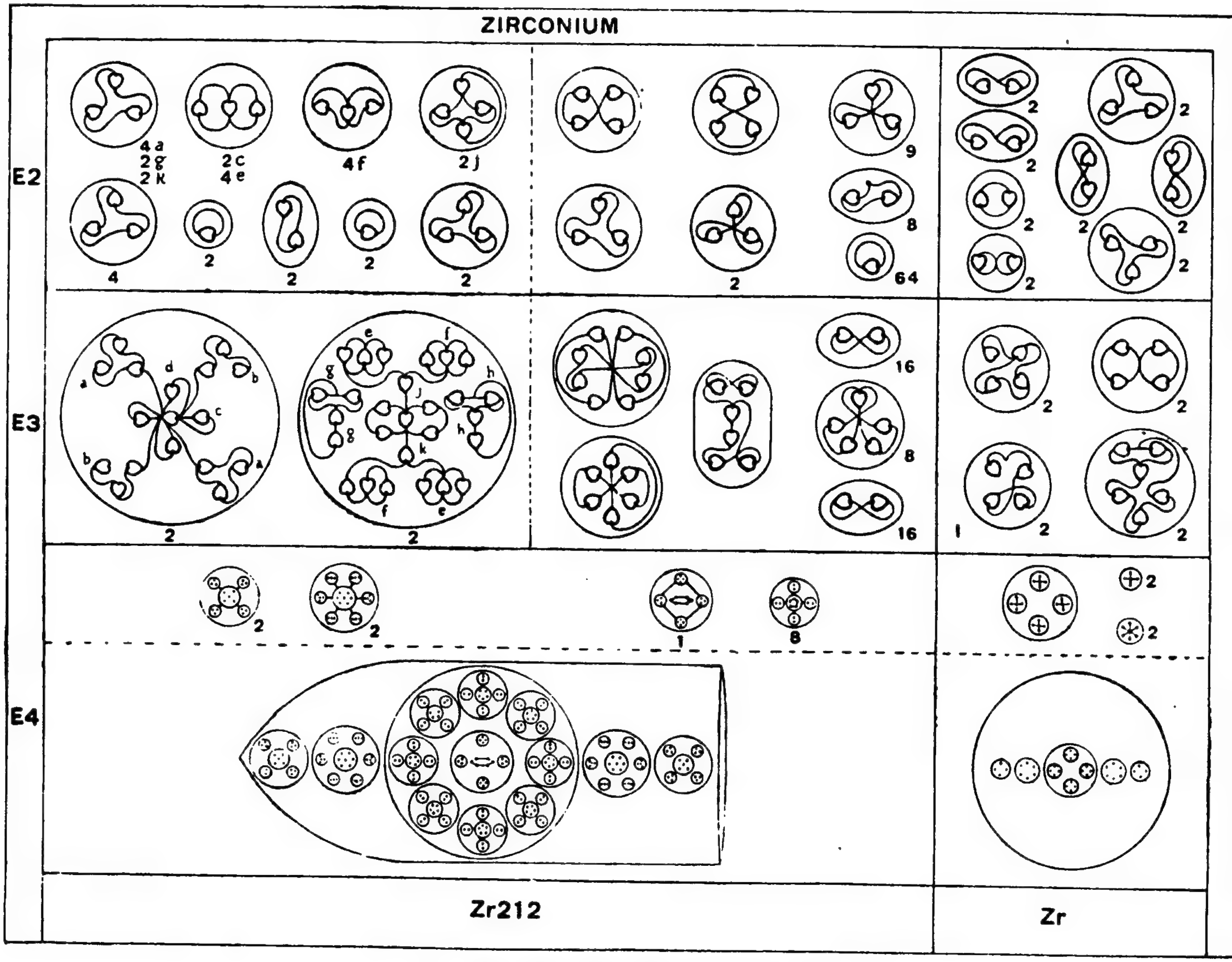


FIG. 128. DISINTEGRATION OF ZIRCONIUM

DISINTEGRATION OF ZIRCONIUM

Zirconium also breaks up in two stages on the *E4 level.* Fig. 128. The four sets of Carbon funnels are liberated as well as four Zr212 from the arms. Twelve Zr36 are set free from the ring and the central globe, Ne120+8, is also liberated.

At the second stage of E4 the Carbon funnels remain together but the other groups break up. The Zr212 gives the four spheres which make up Ti88, and nine globes from its central portion, eight Zr13 and one Ga20.

The spheres from the ring, Zr36, each liberate five bodies, four of which we have already seen in Titanium, and one of which is a group of 16 Anu. These follow the Sodium model.

The central globe liberates six bodies as in Titanium, five Ad24 and one group of eight Anu.

On the E3 level the ¼ C acts as shown under Carbon. The Zr212 forms the complex bodies already seen in Titanium and also an octet, two sextets of different types, eight quintets (from the truncated cigars in the Zr13) and 32 duads.

The Zr36 gives six quartets of different types, and two sextets.

The Ne120+8 acts as shown under Titanium.

On the E2 level quartets, triplets, duads and units are formed.

All these disintegrations can be followed by the aid of Figs. 127 and 128.

Fig. 129 shows the Octahedron Group A in a condensed form, from which the relationships in this group may be studied.

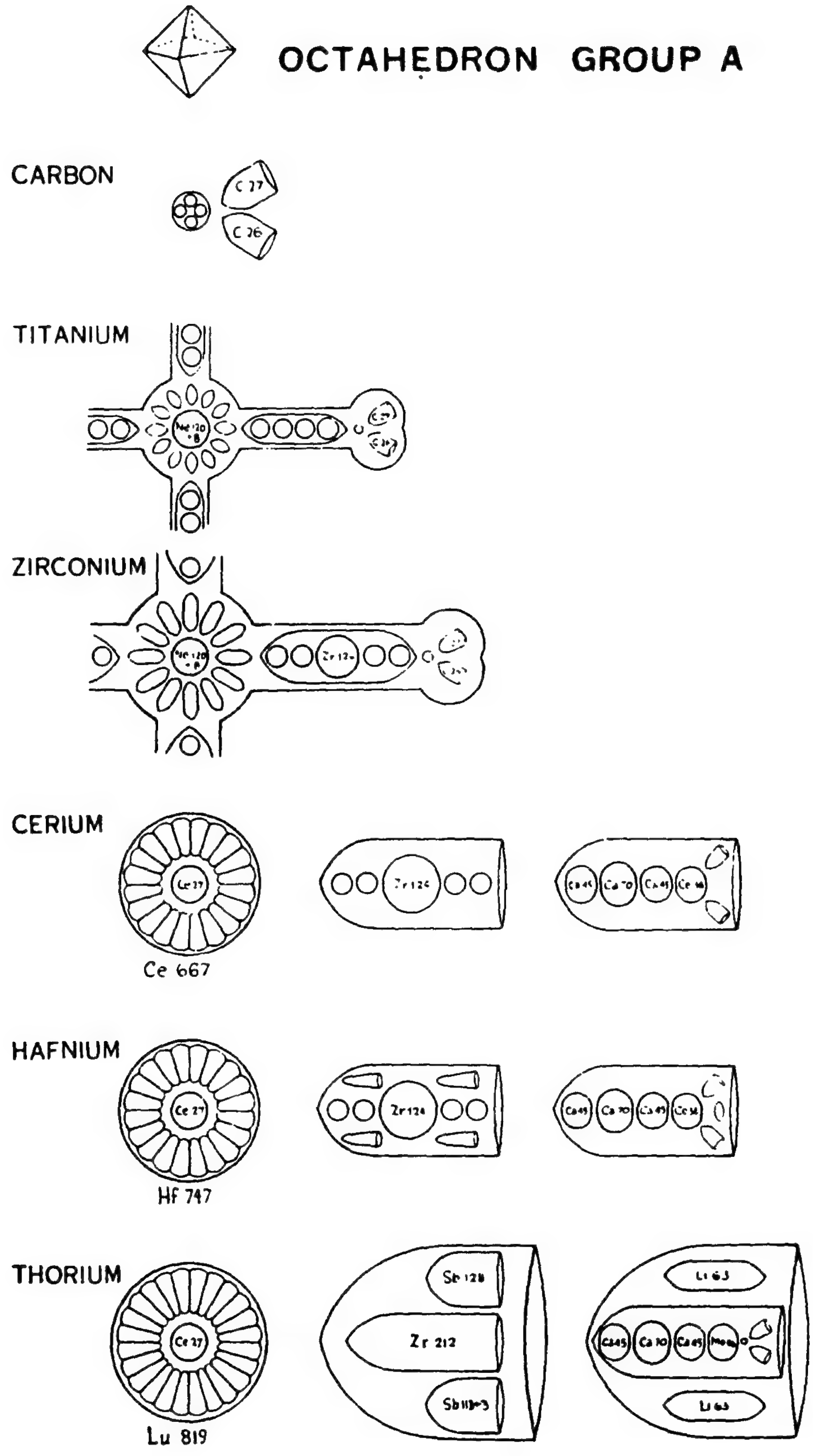


FIG. 129. THE OCTAHEDRON GROUP A

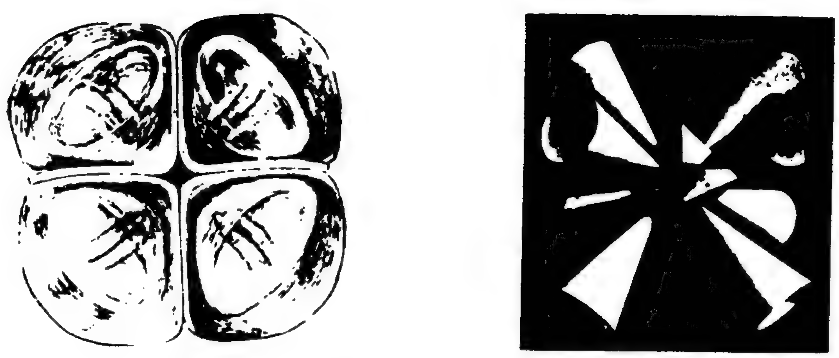


FIG. 130. TYPES OF OCTAHEDRONS

CHAPTER X

THE OCTAHEDRON GROUP B

THESE elements occur at the extreme left-hand swing of the pendulum. Their characteristic valence is four. They all have eight funnels opening on the faces of an octahedron and two of them add spikes pointing to the six corners.

ATOMIC NO.	ANU	ELEMENT	CENTRE	FUNNELS	SPIKES
14	520	Silicon	—	8 (B5+4Si15)	
32	1,300	Germanium	Be4+2Ad24	8 (4Ge39)	
50	2,124	Tin	Ne120	8 (4Ge39)	6Sn126
65	2,916	Terbium	Ne120	8 (4Ge39+2Mo46+L7)	6Sn126
82	3,727	Lead	Tl.687	4 (Ca160+Mo46+4Sn35 +Pb31) 4 (Ca160+4Ge39+Mo46 +Pb21)	

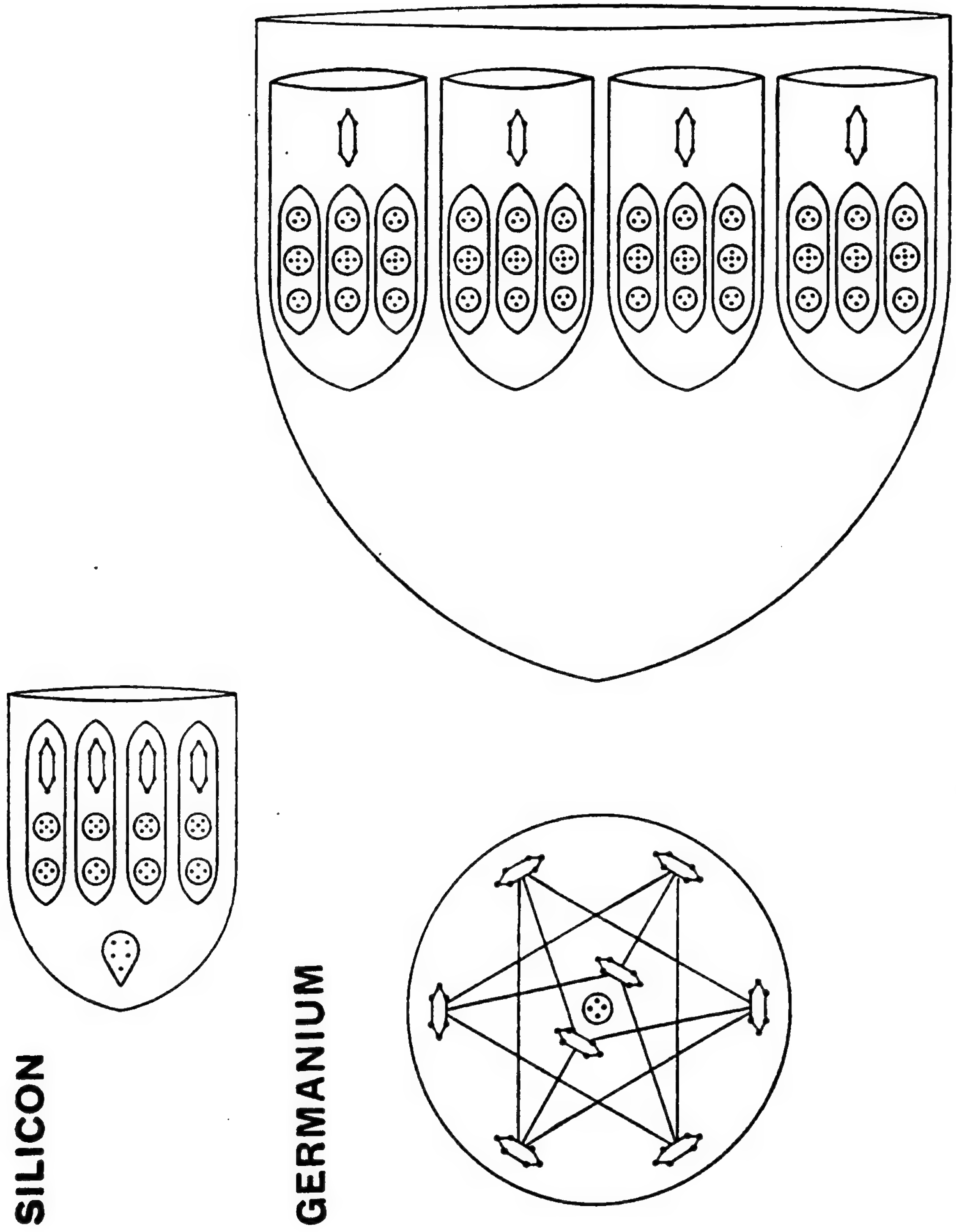


FIG. 131. SILICON AND GERMANIUM

ATOMIC NO. 14.

SILICON

Silicon is at the head of the group and corresponds to Carbon on the opposite extremity of the swing of the pendulum. It has eight funnels containing a group of five Anu, B5, and four ovoids in a circle, Si15, but no central sphere of any kind. All the funnels are alike and open on the faces of an octahedron. Fig. 131.

Silicon = 8(B5+4Si15)

8 funnels of 65 Anu	=	520	Anu
Total	=	520	Anu

$$\text{Number weight } \frac{520}{18} = 28.88$$

ATOMIC NO. 32.

GERMANIUM

Central globe. In this case the funnels radiate from a central globe formed of two intersecting tetrahedrons, 2Ad24. These tetrahedrons enclose a tiny globe of four Anu. Fig. 131.

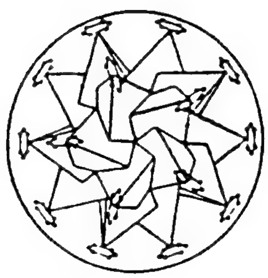
Funnels. There are eight similar funnels each consisting of four segments. The segments are similar and contain three ovoids Ge11 and an Ad6. Thus the segments each contain 39 Anu. This group, Ge39, occurs frequently.

Germanium = (Be4+2Ad24)+8(4Ge39)

Central globe	=	52	Anu
8 funnels each 156 Anu	=	1248	"
Total	=	1300	Anu

$$\text{Number weight } \frac{1300}{18} = 72.22$$

TIN



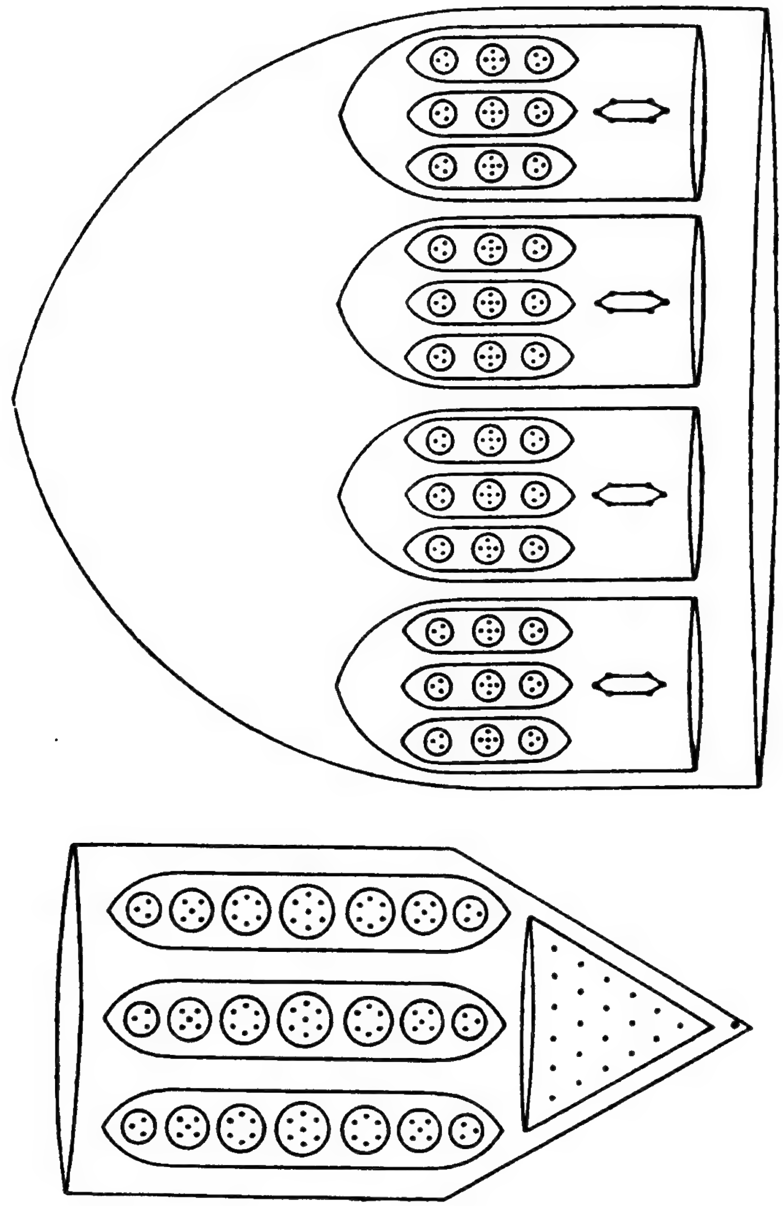


FIG. 132 TIN

ATOMIC NO. 53.

TIN

Central globe. The central globe consists of the five interpenetrating tetrahedrons, Ne120. Tin omits the eight Anu at the centre found in Titanium. Fig. 132.

Funnels. The funnels of Tin are similar to those of Germanium and contain four segments of Ge39, making a total of 156 Anu.

Spikes. To make room for the necessary increase in the number of Anu, Tin adopts the system of spikes met with in Zinc and other elements. These spikes radiate from the central globe but are only six in number. They point to the corners of the octahedron. In each spike there are three pillars and a cone. The pillars, Sn35, are new in detail though not in principle. They consist of small globes containing 3, 5, 6, 7, 6, 5, 3. Anu respectively. The cone at the top of the spike has 21 Anu and is identical with the cone in Silver, Ag21. The total number of Anu in the spike is 126.

Tin = Ne120+8 (4Ge39) + 6Sn126

Central globe	=	120	Anu
8 funnels each 156 Anu	=	1248	"
6 spikes each 126 Anu	=	756	"
Total	=	2124	Anu

Number weight $\frac{2124}{18}$ = 118.0

ATOMIC NO. 65.

TERBIUM

This element resembles Tin and Lead. It was found in solder.

Central globe. This is similar to that of Tin, being composed of Ne120. Fig. 133.

Funnels. The eight similar funnels each contain four Ge39, two Mo46 and one I.7, making a total of 255 Anu. Fig. 134.

Spikes. There are six spikes similar to those of Tin, each composed of Sn126. Fig. 134.

Terbium = Ne120+8 (4Ge39+2Mo46+I.7)+6Sn126

Central globe	=	120	Anu
8 funnels of 255 Anu	=	2040	"
6 spikes of 126 Anu	=	756	"
Total	=	2916	Anu

Number weight $\frac{2916}{18} = 162.00$

TERBIUM

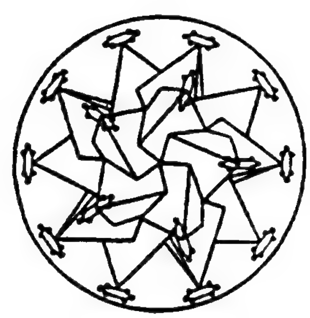


FIG. 133. TERBIUM CENTRE, Ne120

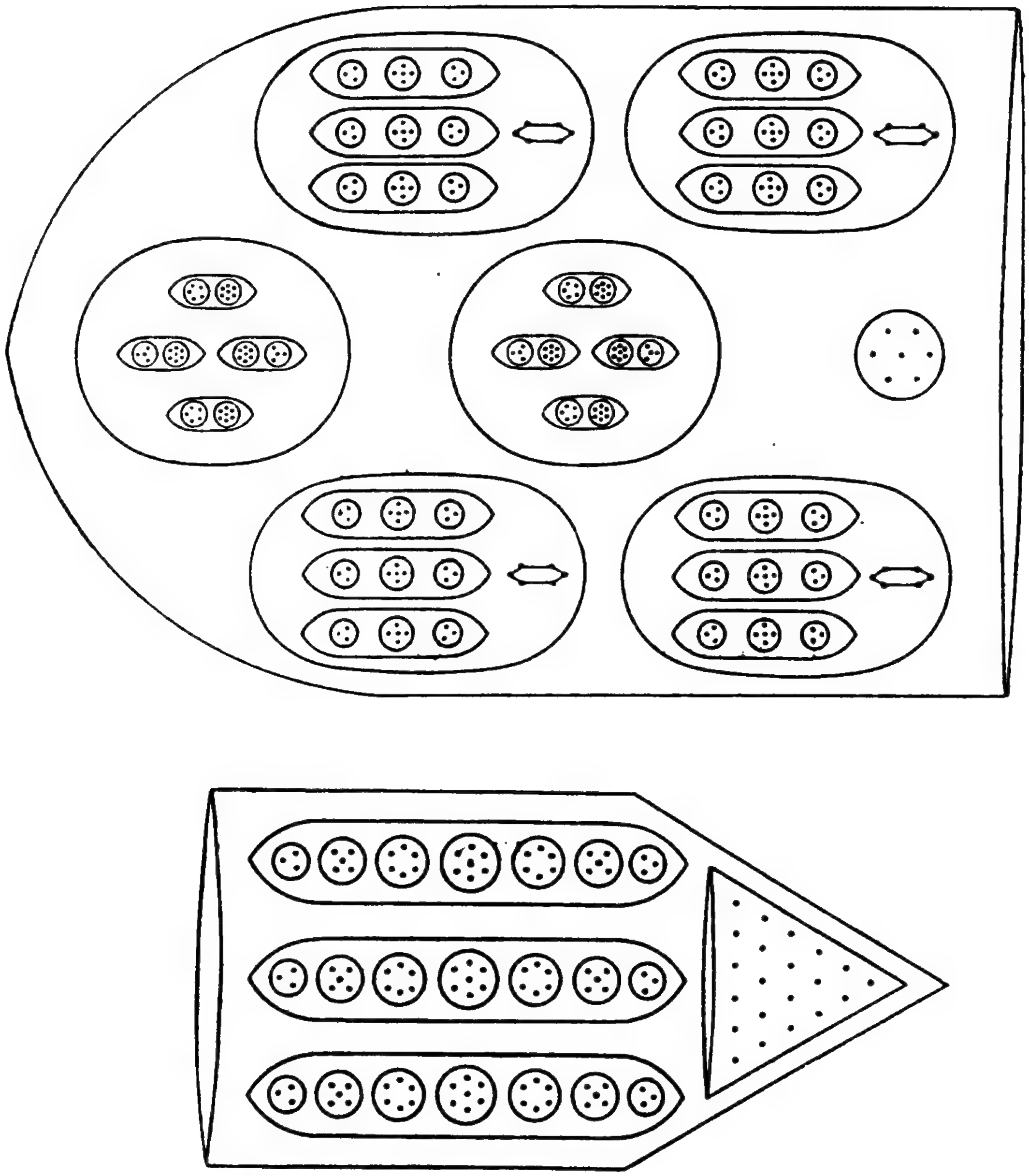


FIG. 134. TERBIUM, FUNNEL AND SPIKE

ATOMIC NO. 82

LEAD

Central globe. The central globe in Lead is similar to that of Thallium and Bismuth. It is made up of the group Ce27 at the centre, surrounded by 20 segments each of Ba33, making the total Tl.687. Fig. 135.

Funnels. Lead has no spikes but has eight funnels of two types. Some of the constituents of the spikes have been used in the funnels. Fig. 136.

Type A contains Ca160, one Mo46, four pillars from the Tin spike, Sn35, and finally, at the mouth of the funnel, there is a sphere Pb31. The total makes up 377 Anu.

Type B contains Ca160 and Mo46. It adds 4 Ge39 groups and an ovoid Pb21 at the mouth of the funnel. The total makes up 383 Anu.

Lead = Tl.687+4(Ca160+Mo46+4Sn35+Pb31)
+4(Ca160+Mo46+4Ge39+Pb21)

Central globe	=	687	Anu
4 funnels each 377 Anu	=	1508	"
4 funnels each 383 Anu	=	1532	"
Total	=	3727	Anu

$$\text{Number weight } \frac{3727}{18} = 207.05$$

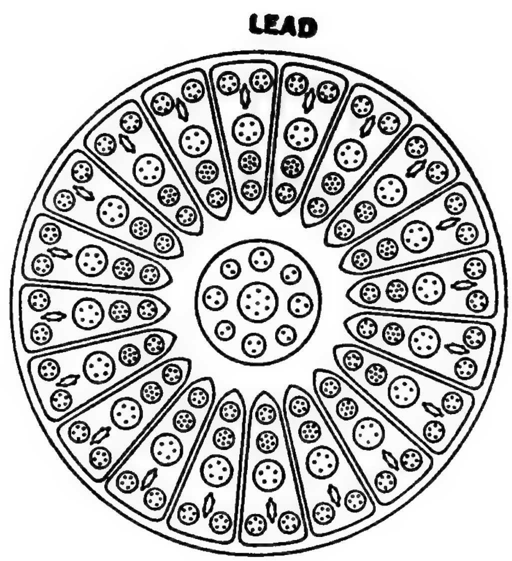


FIG. 135. LEAD CENTRE, Tl.687

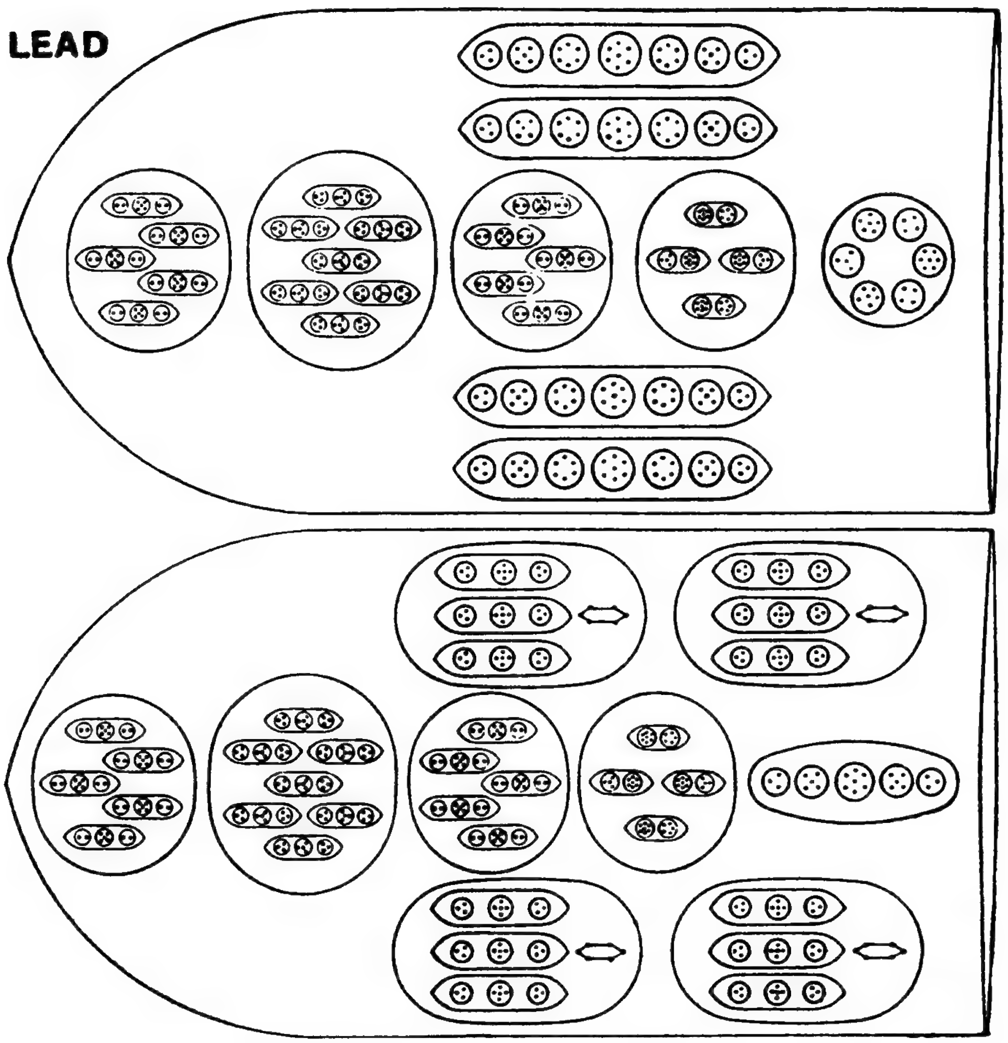


FIG. 136. LEAD FUNNELS

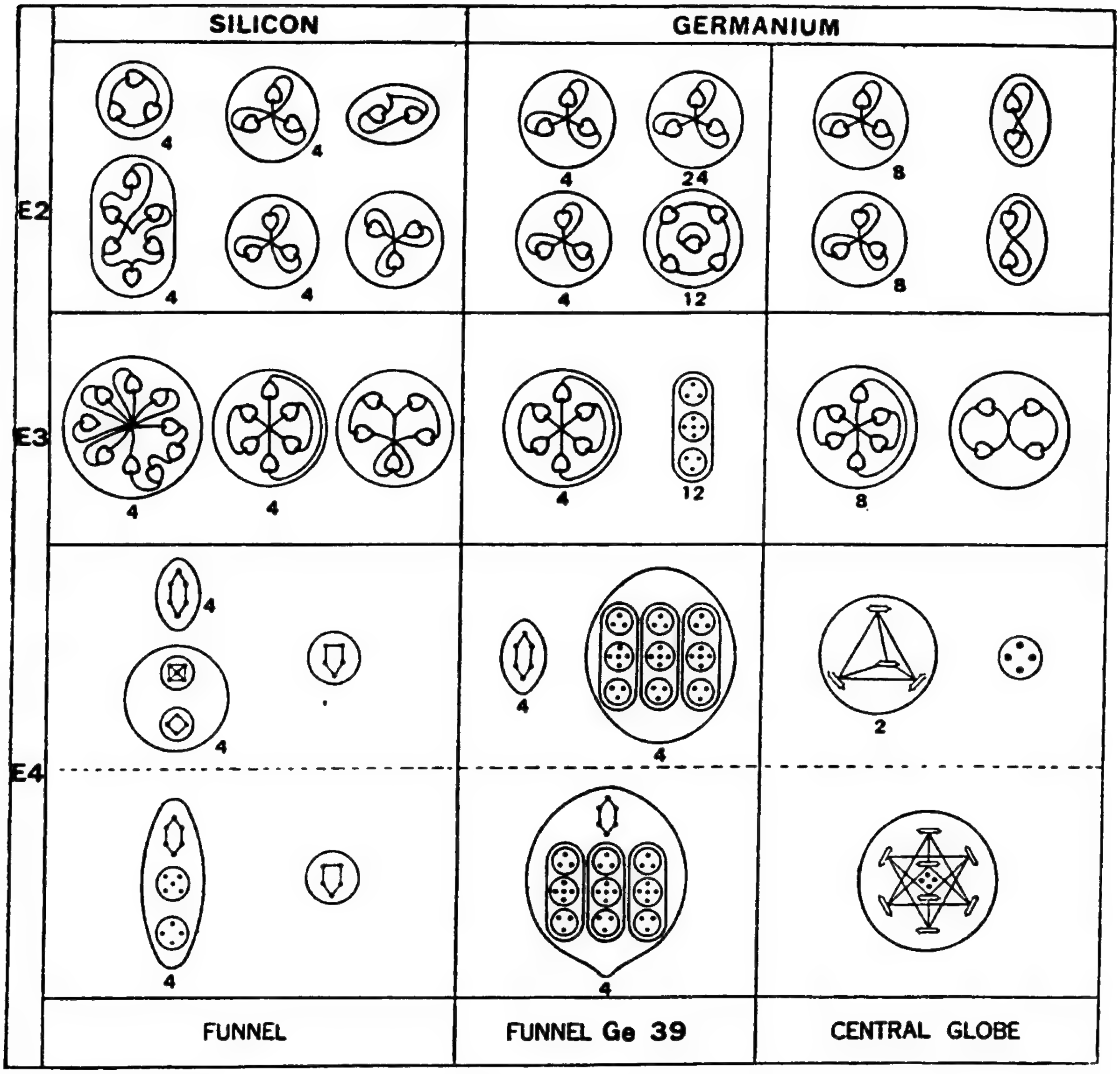


FIG. 137. DISINTEGRATION OF SILICON AND GERMANIUM

DISINTEGRATION OF OCTAHEDRON GROUP B

DISINTEGRATION OF SILICON

On the E4 level the four ovoids Si15 and the B5 are first liberated from the funnels. The four Ad6 then escape from their ovoids, leaving the quintet and quartet together in a sphere, as shown in Fig. 137.

On the E3 level the quintet and quartet join together to form a group of nine Anu. The Ad6 gives its usual sextet and the B5 a quintet.

On the E2 level the group of nine Anu divides into a sextet and a triplet, the Ad6 sextet gives two triplets and the quintet a triplet and a duad.

DISINTEGRATION OF GERMANIUM

Funnels. The four large ovoids, Ge39, in the funnels are first set free on the E4 level. Then the cigar Ad6 bursts its way through and goes along its accustomed path. The three groups, Ge11, are left in the ovoids.

On the E3 level the Ad6 form sextets while the Ge11 are set free.

On the E2 level these form triplets and a quintet as shown.

The Central globe. The globe is first liberated and then the two tetrahedrons 2Ad24 separate and free the little sphere of four Anu, Be4. These four Anu give the Sodium cross also found in Titanium.

On the E3 level the Ad24 break up into sextets and the Be4 gives a quartet.

On the E2 level these give triplets and duads. Fig. 137.

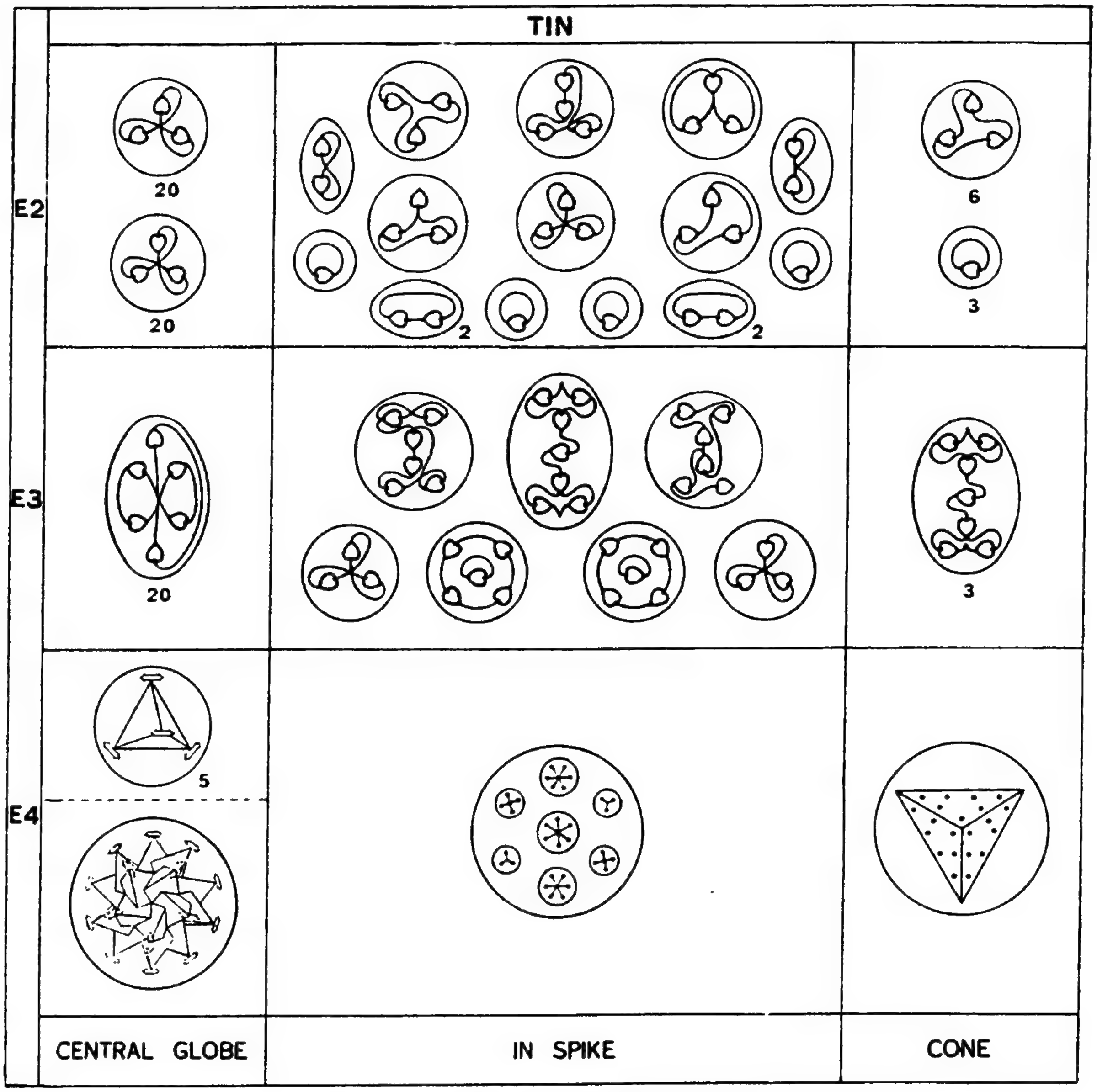


FIG. 138. DISINTEGRATION OF TIN

DISINTEGRATION OF TIN

Funnels. The funnels are exactly like those of Germanium and disintegrate as shown under Germanium. Fig. 137.

Central globe. The central globe, Ne120, is first liberated on the E4 level. It then breaks up into its five tetrahedrons, 5Ad24. On the E3 level these tetrahedrons each give four sextets, and these sextets each give two triplets on the E2 level. Fig. 138.

Spikes. The three pillars, Sn35, are liberated on the E4 level and become spheres, the single septet being at the centre and the other six bodies circling round it on differing planes. On the E3 level these seven spheres are liberated and form groups as shown in Fig. 138. They disintegrate further on the E2 level giving a quartet, triplets, duads and units.

The cone in the spike, Ag21, is also set free on the E4 level. This is really a pyramid as in Silver. On the E3 level three septets are formed and on the E2 level six triplets and three units.

Fig. 139 shows the Octahedron Group B in a condensed form, from which the relationships in the group may be studied.

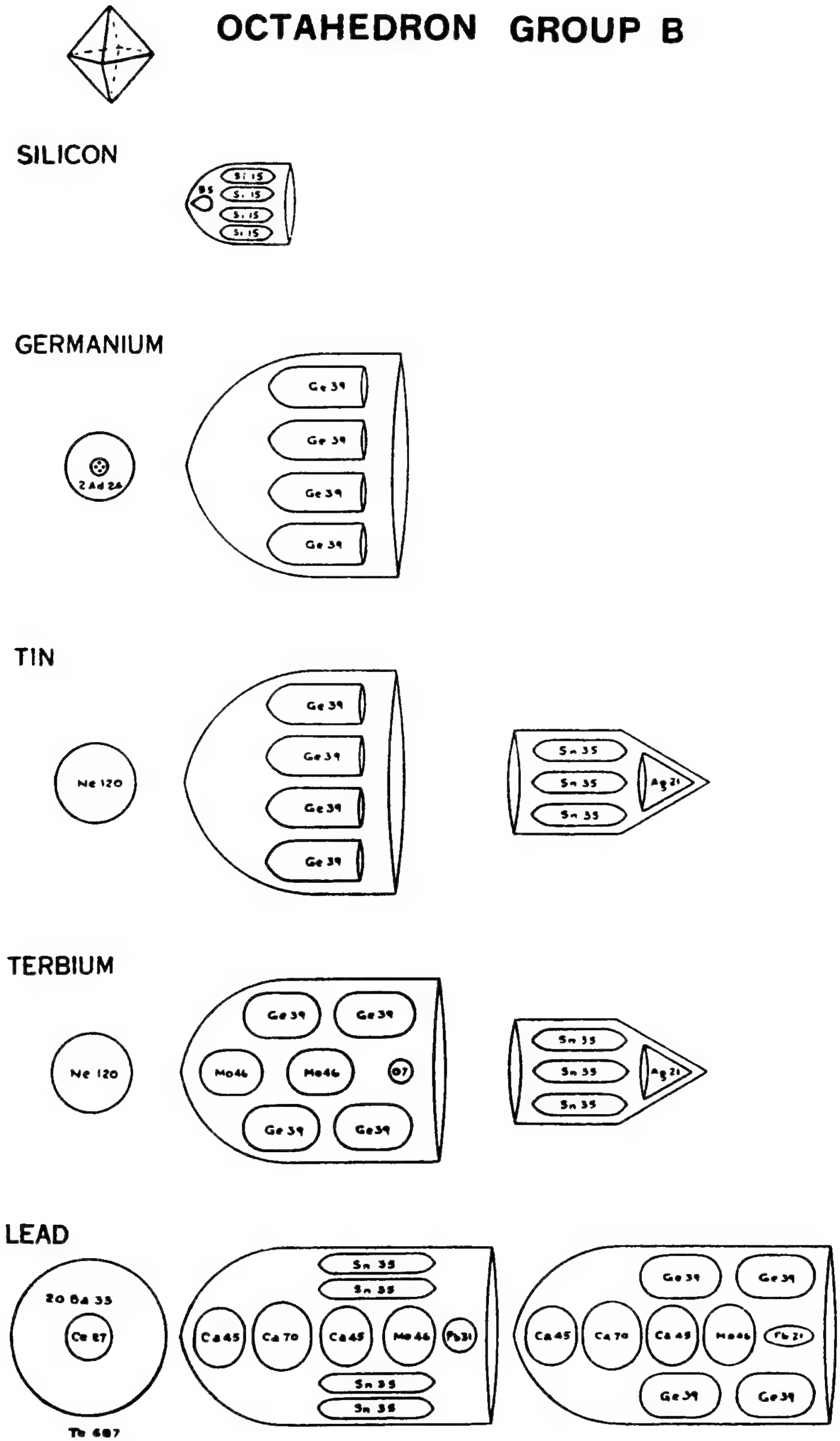


FIG. 139 THE OCTAHEDRON GROUP B

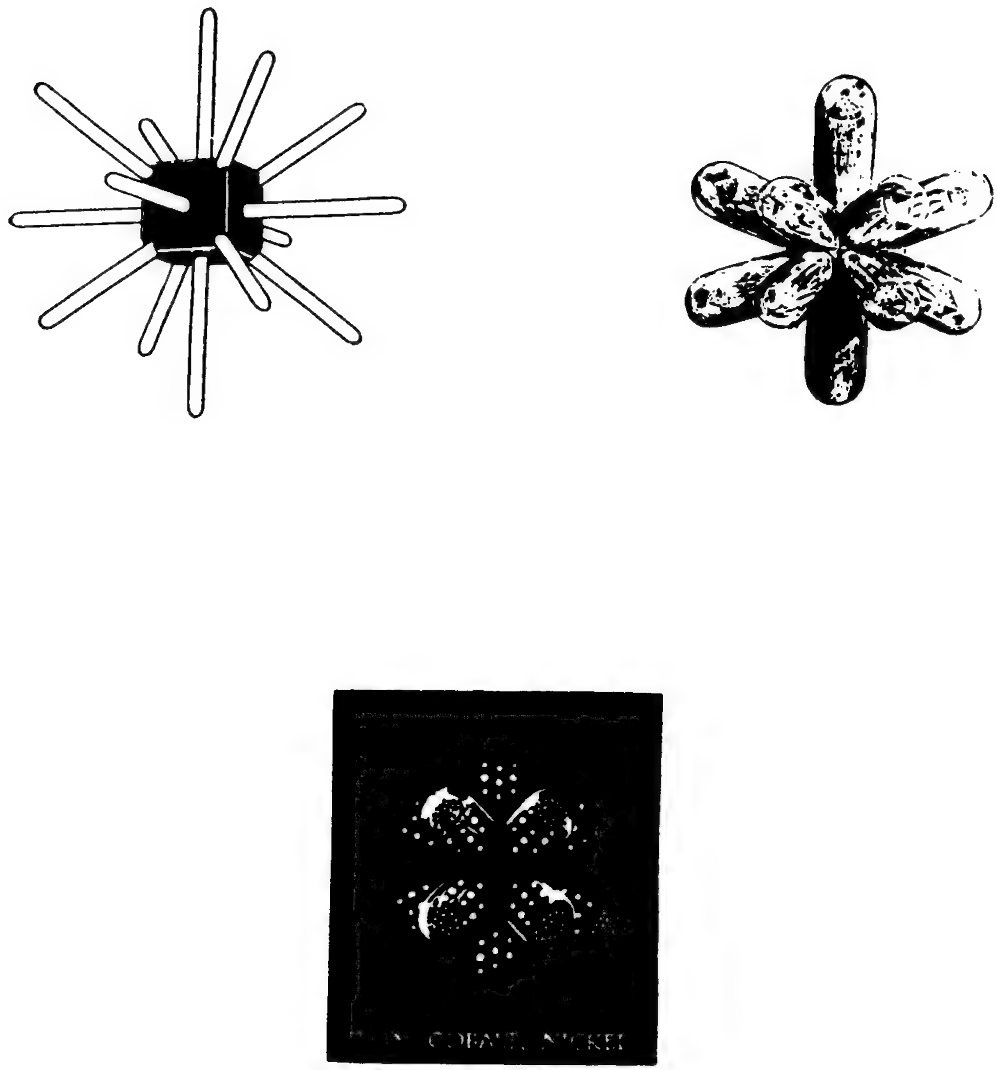


FIG. 140. TYPES OF THE BARS GROUP

CHAPTER XI

THE BARS GROUP

THIS group comprises those elements sometimes known as the Interperiodics. They occur in the pendulum diagram on the central line, alternately with the inert gases of the Star Group. They are all metals and have a maximum valence of eight.

When examined these elements were seen to have a striking configuration. Their general appearance is shown in Fig. 140. They consist of seven equal rods piercing a cube, three through the six middle points of its surfaces and four through its corners. There are therefore seven crossed bars whose directions in space are fixed by the cube. They may also be considered as consisting of fourteen half bars, all the half bars being identical. It should be clearly noted that there is no cube, nor outline of a cube to be seen in the element itself. The half-bars interlock in the centre of a sphere. The cube has been drawn simply to indicate the directions in space of the half-bars.

The elements in this group occur as closely associated sets of three. Three of these groups of three are known to science and a fourth group has been observed by clairvoyance and is here described. Within a group of three the difference between one member and its successor is 28 Anu, that is to say two extra Anu in each half-bar.

ATOMIC NO.	ANU	ELEMENT	14 BARS
26	1,008	Iron	14 (2Fe14 + Fe16 + Fe28)
27	1,036	Cobalt	14 (2Fe14 + Fe16 + 2Co11 + Co8)
28	1,064	Nickel	14 (2Fe14 + Fe16 + 2Co11 + Ni10)
44	1,848	Ruthenium	14 (2Fe16 + 2Fe14 + 2Ru17 + 2Ru19)
45	1,876	Rhodium	14 (2Fe16 + 2Fe14 + 2Rh20 + 2Rh17)
46	1,904	Palladium	14 (2Rh17 + 2Pd15 + 2Pd17 + 2Pd19)
—	2,646	X	14 (3X30 + 3X28 + X15)
—	2,674	Y	14 (3X30 + 2Y29 + X28 + X15)
—	2,702	Z	14 (3X30 + 3Z31 + Cu10)
76	3,430	Osmium	14 (4X30 + 3Z31 + Os32)
77	3,458	Iridium	14 (4X30 + 2Ir26 + 2Ir27 + Ag21)
78	3,486	Platinum	14 (4X30 + 2Ir26 + 2X28 + Ag21)

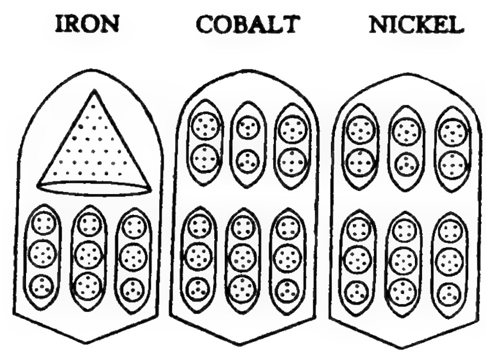


FIG. 141. IRON, COBALT, NICKEL

ATOMIC NOS. 26, 27, 28. IRON, COBALT NICKEL

Owing to their similarity and mutual relationships it will be simplest to consider the groups of three elements together. Fig. 141.

It will be noticed that each bar has two sections, and that the three lower sections in Iron, Cobalt and Nickel are identical (2Fe14+ Fe16). In the upper sections Iron has a cone of twenty-eight Anu, Fe28, while Cobalt and Nickel have each three ovoids, and of these the middle ones alone differ, and that only in their upper globes, this globe having four Anu in Cobalt and six in Nickel.

As explained previously, the groups of Anu are in three dimensional space. The ovoids within each bar revolve round the central axis of the bar, remaining parallel with it, while each spins on its own axis; the Iron cone spins round as though impaled on the axis.

Iron = 14(2Fe14+Fe16+Fe28)

14 bars of 72 Anu	=	1008	Anu
Total	=	1008	Anu

$$\text{Number weight } \frac{1008}{18} = 56.00$$

Cobalt = 14(2Fe14+Fe16+2Co11+Co8)

14 bars of 74 Anu	=	1036	Anu
Total	=	1036	Anu

$$\text{Number weight } \frac{1036}{18} = 57.55$$

Nickel = 14(2Fe14+Fe16+2Co11+Ni10)

14 bars of 76 Anu	=	1064	Anu
Total	=	1064	Anu

$$\text{Number weight } \frac{1064}{18} = 59.11$$

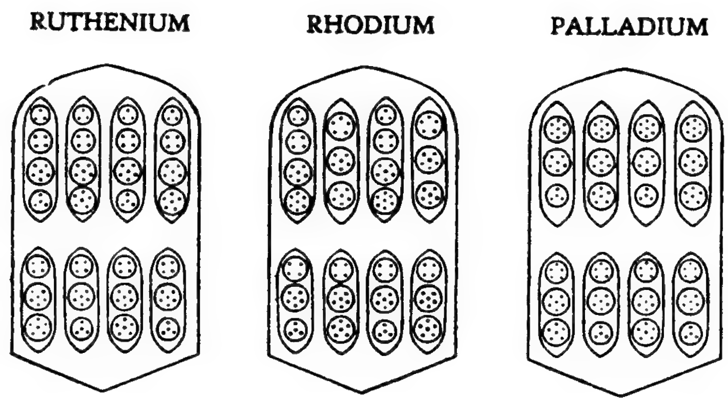


FIG. 142. RUTHENIUM, RHODIUM, PALLADIUM

ATOMIC NOS. 44, 45 & 46

RUTHENIUM, RHODIUM AND PALLADIUM

The next sub-group, Ruthenium, Rhodium and Palladium, is formed on the same pattern. Fig. 142. It will be observed that each bar contains eight ovoids, instead of the six of Cobalt and Nickel. Ruthenium and Palladium have the same number of Anu in their upper ovoids, although in Ruthenium a triplet and quartet replace the septet of Palladium. In Ruthenium and Rhodium the lower ovoids are identical, though Ruthenium has the order: sixteen, fourteen, sixteen, fourteen; and Rhodium: fourteen, sixteen, fourteen, sixteen. One constantly asks oneself: What is the significance of these minute changes?

Ruthenium = 14 (2Fe16+2Fe14+2Ru17+2Ru19)

14 bars of 132 Anu	=	1848	Anu
Total	=	1848	Anu

$$\text{Number weight } \frac{1848}{18} = 102.66$$

Rhodium = 14 (2Fe16+2Fe14+2Rh20+2Rh17)

14 bars of 134 Anu	=	1876	Anu
Total	=	1876	Anu

$$\text{Number weight } \frac{1876}{18} = 104.22$$

Palladium = 14 (2Rh17+2Pd15+2Pd17+2Pd19)

14 bars of 136 Anu	=	1904	Anu
Total	=	1904	Anu

$$\text{Number weight } \frac{1904}{18} = 105.77$$

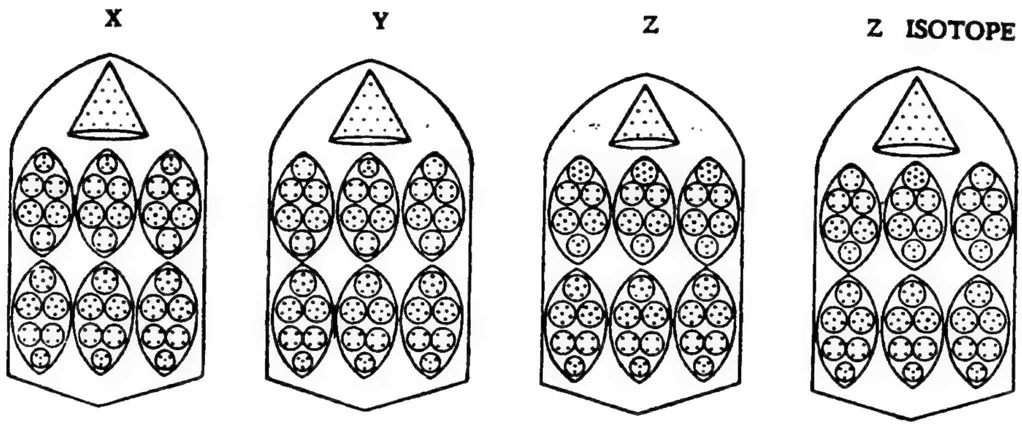


FIG. 143. X, Y, Z AND ISOTOPE OF Z

ATOMIC NO.—

ELEMENTS X, Y, Z

This Group fills in the gap in the periodic table. In each of the fourteen bars there are two sections, each containing three ovoids, and a cone. Fig. 143.

The lower sections in each of these elements are similar, each consisting of three ovoids of thirty Anu, X30.

X contains three groups X28 in its upper section and then a cone of fifteen Anu.

Y is similar, save that it contains only one X28 but adds two groups of twenty-nine Anu, Y29.

Z contains three groups of thirty Anu in its upper section. An isotope of Z was observed, differing only by one Anu in each bar. The cone in Z has ten Anu.

X = 14(3X30+3X28+X15)

14 bars of 189 Anu = 2646 Anu

Total = 2646 Anu

$$\text{Number weight } \frac{2646}{18} = 147.00$$

Y = 14(3X30+2Y29+X28+X15)

14 bars of 191 Anu = 2674 Anu

Total = 2674 Anu

$$\text{Number weight } \frac{2674}{18} = 148.55$$

Z = 14(3X30+3Z31+Cu10)

14 bars of 193 Anu = 2702 Anu

Total = 2702 Anu

$$\text{Number weight } \frac{2702}{18} = 150.11$$

Z isotope = 14(3X30+2Y29+Z31+X15)

14 bars of 194 Anu = 2716 Anu

Total = 2716 Anu

$$\text{Number weight } \frac{2716}{18} = 150.88$$

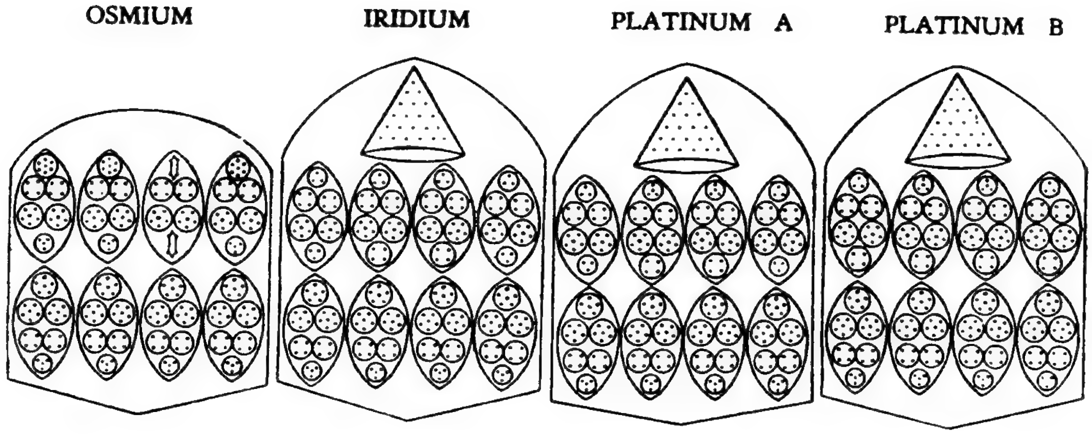


FIG. 144. OSMIUM, IRIDIUM, PLATINUM A, PLATINUM B

ATOMIC NOS. 76, 77, 78. OSMIUM, IRIDIUM, PLATINUM

The fourth group, Osmium, Iridium and Platinum is, of course, more complicated in its composition, but its builders succeed in preserving the bar form, gaining the necessary increase by additional contained spheres within the ovoids. Osmium has one peculiarity: the ovoid Os32 takes the place of the axis, in the upper half of the bar, and the three ovoids, Z31, revolve round it. In the lower half, the four ovoids, X30, revolve round the central axis. Fig. 144.

Osmium. Each section contains four ovoids very similiar to those already met with in X, Y and Z the lower four being identical with X30.

Osmium = 14 (4X30+3Z31+Os32)

14 bars of 245 Anu	=	3430	Anu
Total	=	3430	Anu

Number weight $\frac{3430}{18} = 190.55$

Iridium. It will be noticed that the lower sections of the bars are identical in all the members of this sub-group, each of the four ovoids containing thirty Anu, X30. The upper ring of ovoids in Iridium and Platinum A are also identical but for the substitution, in Platinum A, of a quartet for a triplet in the second and third ovoids ; their cones are identical, containing twenty-one Anu, like those of Silver and Tin.

Iridium = 14 (4X30+2Ir26+2Ir27+Ag21)

14 bars of 247 Anu	=	3458	Anu
Total	=	3458	Anu

Number weight $\frac{3458}{18} = 192.1$

Platinum. In Platinum, we have observed two forms, Platinum A and Platinum B, the latter having two spheres of four Anu in the place of the two triplets. It may well be that what we have called Platinum B is not a variety of Platinum, but a new element, the addition of two Anu in a bar being exactly that which separates the other elements within each of the sub-groups.

Platinum A = 14 (4X30+ +2Ir26+2X28+Ag21)

14 bars of 249 Anu	=	3486	Anu
Total	=	3486	Anu

Number weight $\frac{3486}{18} = 193.66$

Platinum B = 14 (4X30+2Ir27+2X28+Ag21)

14 bars of 251 Anu	=	3514	Anu
Total	=	3514	Anu

Number weight $\frac{3514}{18} = 195.2$

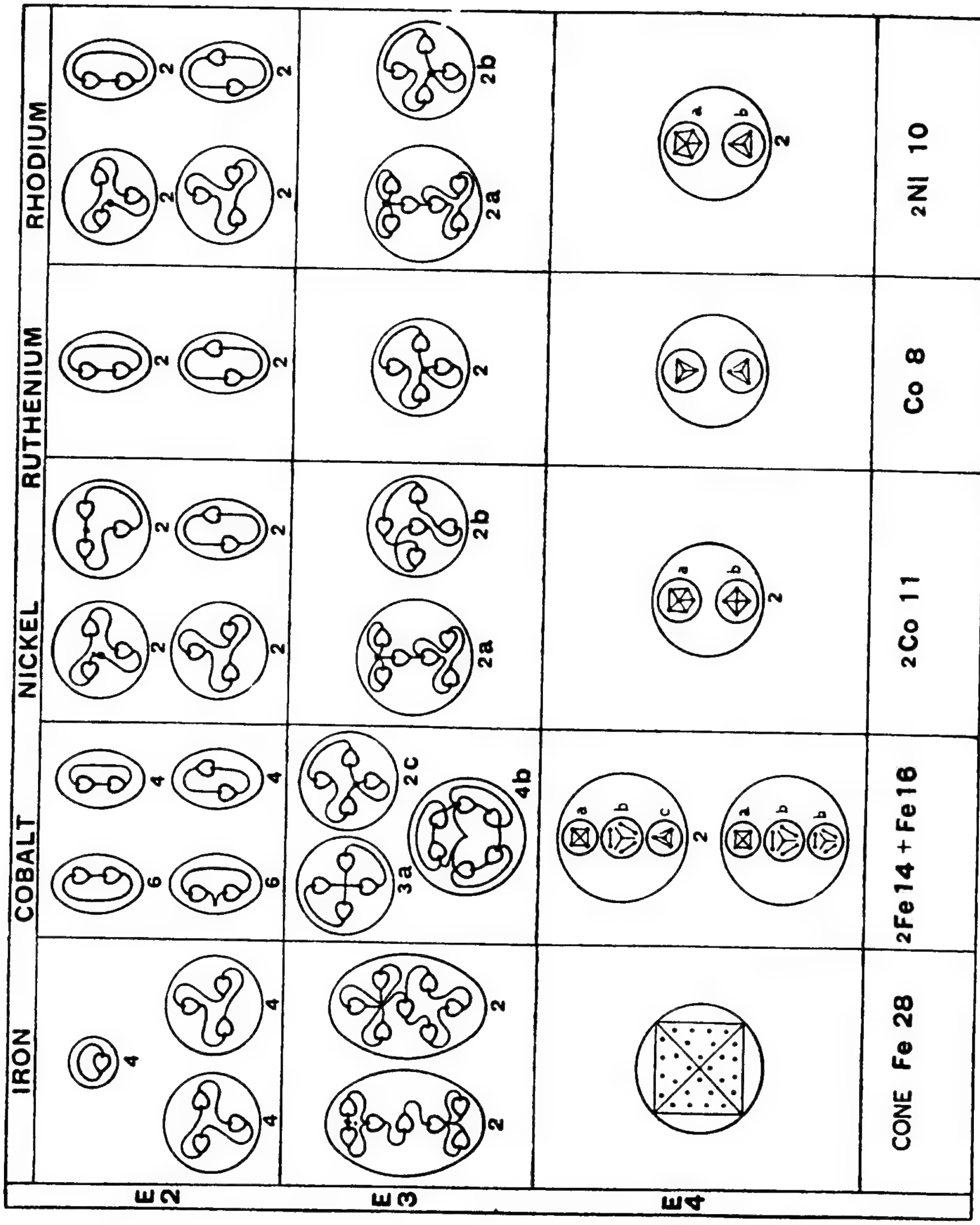


FIG. 145. DISINTEGRATION OF IRON, COBALT AND NICKEL

DISINTEGRATION OF THE BARS GROUP

DISINTEGRATION OF IRON, COBALT, NICKEL

Iron. The 14 bars of iron break asunder on the E4 level and each sets free its contents, a cone and three ovoids. Fig. 145.

The cone of twenty-eight Anu becomes a four-sided figure with seven Anu in each face. On the E3 level this cone gives four septets and these are reduced to triplets and units on the E2 level.

The ovoids Fe 14 and Fe16 show crystalline contents on the E4 level and become spherical in shape. On the E3 level these three spheres give four sextets and two quartets of one type and three of another. They reduce to duads of various types on the E2 level.

Cobalt. The three lower ovoids in Cobalt are identical with those in Iron. The cone is replaced by three upper ovoids, two being Co.11 and one Co8. These all become spheres on the E4 level. On the E3 level the three lower ovoids behave as in Iron, while the Co.11 gives a sextet and a quintet and the Co8 two quartets. On the E3 level triplets and duads are formed as shown in Fig. 145.

Nickel. The three lower ovoids are identical with those of Iron and Cobalt and disintegrate in the same way.

Of the three upper ovoids, two are Co.11. The third, Ni10, contain a sextet and a quartet and forms a sphere on the E4 level. On the E3 level these give a sextet and a quartet and on the E2 level triplets and duads.

All these can be followed in Fig. 145.

Fig. 146 shows the Bars Group in a condensed form, from which the relationships can be studied.

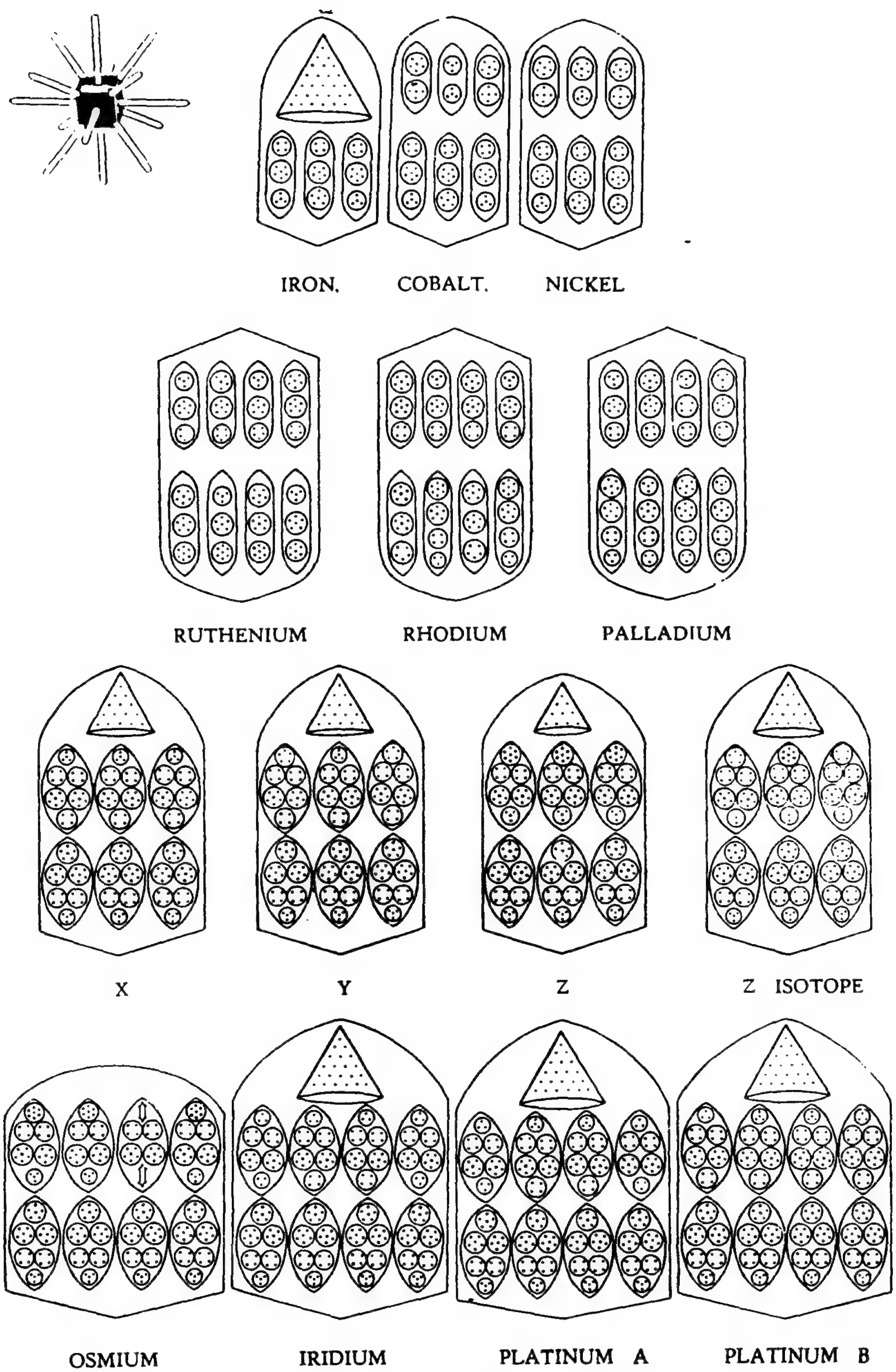


FIG. 146. THE BARS GROUP

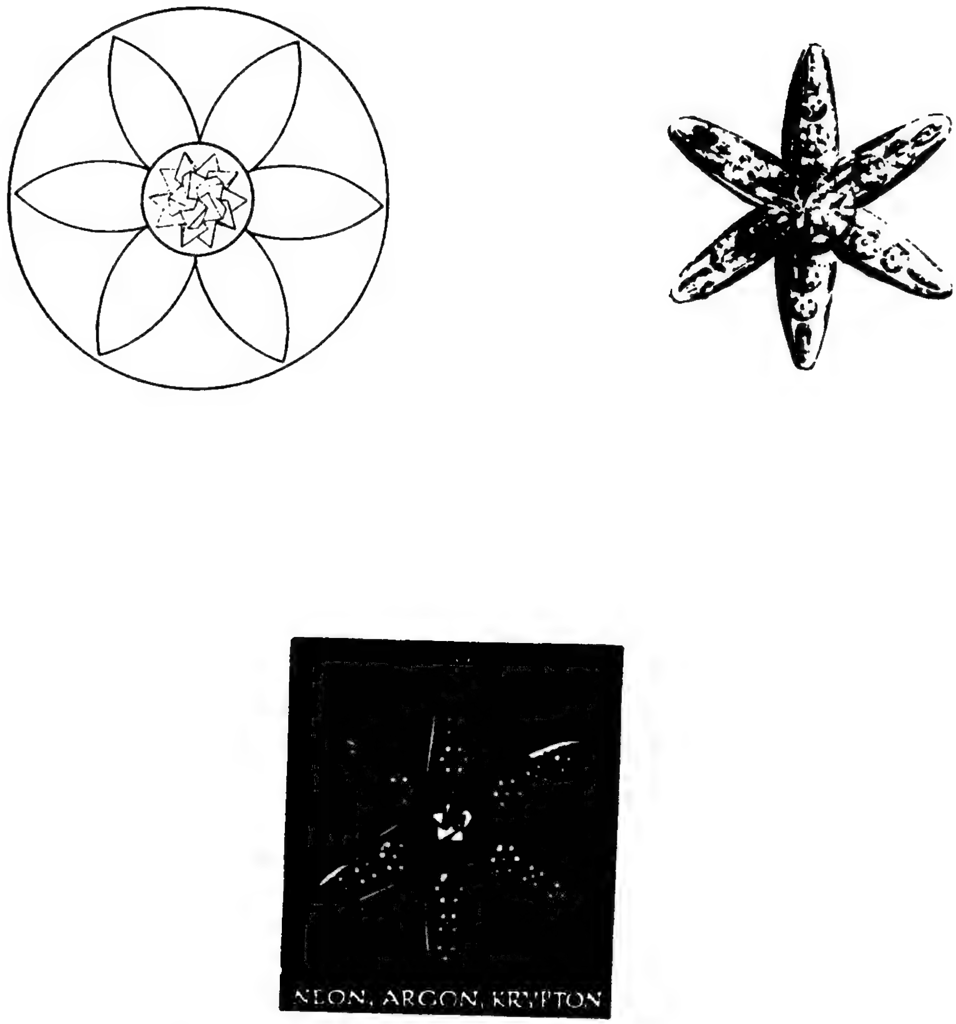


FIG. 147. TYPES OF THE STAR GROUP

CHAPTER XII

THE STAR GROUP

THIS group comprises those elements known as the inert gases. Their characteristic valence is O. In the Pendulum diagram they appear on the middle line, alternately with the Bars Group.

Each inert gas has the appearance of a flat six-armed star. All the six arms within one element are the same. Fig. 147.

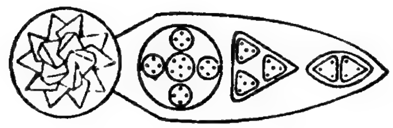
The arms radiate from a central sphere made of five intersecting tetrahedrons. This sphere first occurs in Neon and is the group Ne120 with which we are familiar. Helium, which is classed by chemists with the inert gases, has a different configuration and has been considered in the Hydrogen Group.

Each member of the Star Group has its meta variety or isotope. On examination of the diagrams it will be seen that in each meta variety each of the six arms has seven more Anu. Therefore the difference between Neon and Meta-Neon is exactly forty-two Anu; and so with all the other elements and their isotopes in the group.

One gas was discovered in the clairvoyant investigations of 1907, for which there is no place in the list of atomic numbers. Its rarity was then described by saying that there might be one in the atmosphere of an ordinary-sized room. It was named by us "Kalon," the "beautiful," and its diagram was published, with that of its meta variety.

ATOMIC NO.	ANU	ELEMENT	CENTRE	6 ARMS
10	360	Neon	Ne120	6 [Ne22 + (3Li4) + (2H3)]
18	714	Argon	Ne120	6 [N63 + Ne22 + Ar14]
36	1,464	Krypton	Ne120	6 [N63 + N110 + Ne22 + mNe15 + Ar14]
54	2,298	Xenon	Ne120	6 [Xe15 + Xe14 + N63 + 2N110 + Ne22 + mNe15 + Ar14]
—	3,054	Kalon	Ne120	6 [Xe15 + Xe14 + 2N63 + 2N110 + 2Ne22 + 2mNe15 + 2Ar14 + Ka12]
86	3,990	Radon	Ne120	6 [Xe15 + Xe14 + 2N63 + 3N110 + 3mNe22 + 3mNe15 + 3Ar14 + I.7]

NEON



META-NEON

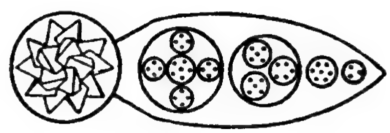


FIG. 148. NEON AND META-NEON

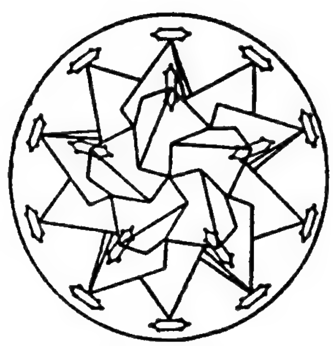


FIG. 149. Ne120

ATOMIC NO. 10.

NEON

As already stated, Neon is in the form of a flat star, with a central globe and six radiating arms. Fig. 148.

The *central globe* consists of five interpenetrating tetrahedrons, each tetrahedron being similar to that in Adyarium, Ad24. These five tetrahedrons compose a form which generates the dodecahedron and icosahedron. The group occurs often as the central globe of elements and is distinguished as Ne120. Fig. 149.

Star. Each arm of the star is composed of three bodies, including one of five spheres, Ne22 which occurs in all the members of this group. Then come three Li4, and finally a group containing two triplets, 2H3.

Neon = Ne120+6(Ne22+3Li4+2H3)

Central globe	=	120	Anu
Six arms of 40 Anu	=	240	„
Total	=	360	Anu

Number weight $\frac{360}{18} = 20.00$

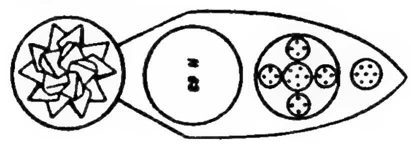
Isotope of Neon. Meta-Neon differs from Neon by the insertion of an additional Anu in each of the groups included in the second body within its arm, and substituting a group of seven Anu for one of the triplets in the final body. Fig. 148.

Meta-Neon = Ne120+6[Ne22+mNe15+L7+H3]

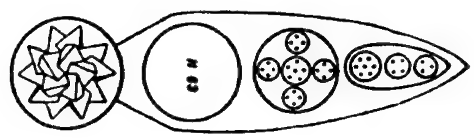
Central globe	=	120	Anu
Six arms of 47 Anu	=	282	„
Total	=	402	Anu

Number weight $\frac{402}{18} = 22.33$

PROTO-ARGON



ARGON



META-ARGON

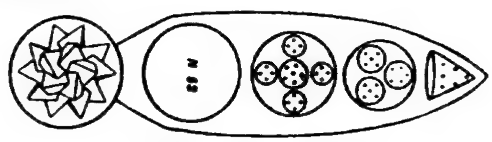


FIG. 150. ARGON

ATOMIC NO 18.

ARGON

The *central globe* is formed of Ne120.

Star. Each arm of the star contains the N63 group, then Ne22 and a new group of fourteen Anu, Ar14.

Argon = Ne120+6(N63+Ne22+Ar14)

Central globe	=	120	Anu
6 arms of 99 Anu	=	594	"
Total	=	714	Anu

Number weight $\frac{714}{18}$ = 39.66

Meta-Argon. This isotope of Argon contains seven more Anu in each arm, the Ar14 being replaced by m-Ne15 and a cone of six Anu.

Meta-Argon = Ne120+6(N63+Ne22+mNe15+mAr6)

Central globe	=	120	Anu
6 arms of 106 Anu	=	636	"
Total	=	756	Anu

Number weight $\frac{756}{18}$ = 42.00

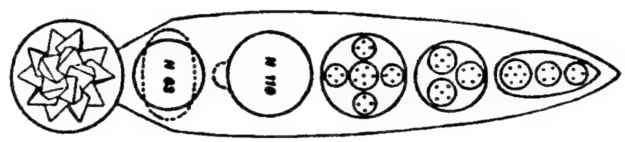
A curious irregularity appears in Argon. When its weight was determined it was found to be heavier than Potassium instead of being lighter. Argon comes, therefore, out of its proper place in the Periodic Table. But clairvoyant research shows that it does not in reality do so; the true Argon does come in its right place, and its number weight is 37.33. We have called the lighter variety proto-Argon. It is extremely rare in the atmosphere, and the ordinarily known Argon is the commoner variety.

Proto-Argon = Ne120+6(N63+Ne22+L7)

Central globe	=	120	Anu
6 Arms of 92 Anu	=	552	"
Total	=	672	Anu

Number weight $\frac{672}{18}$ = 37.33

KRYPTON



META-KRYPTON

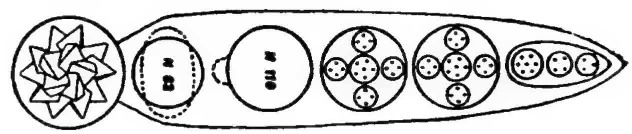


FIG. 151. KRYPTON

ATOMIC NO. 36.

KRYPTON

Central globe. As in all the Star Group elements the central globe is Ne120.

Star. Each arm of the star contains constituents from Argon and Meta-Argon, with the addition of an N110. The groups N110 and N63 appear constantly in the building up of these elements. When these two bodies appear one above the other there is a strong attraction between them; the sphere-wall of N110 is pulled towards N63, while the sphere wall of the latter undergoes a flattening compression.

Krypton = Ne120+6(N63+N110+Ne22+mNe15+Ar14)

Central globe	=	120	Anu
6 arms of 224 Anu	=	1344	"
Total	=	1464	Anu

Number weight $\frac{1464}{18} = 81.33$

Meta-Krypton. This isotope is slightly higher in atomic weight, and the two together should make up about the atomic weight given by science.

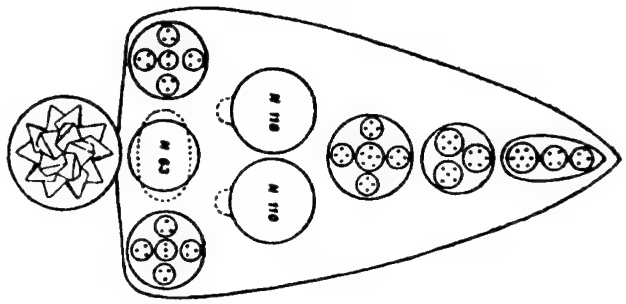
It differs from Krypton only in the substitution of Ne22 for mNe15 in each arm of the star.

Meta-Krypton = Ne120+6(N63+N110+2Ne22+Ar14)

Central globe	=	120	Anu
6 arms of 231 Anu	=	1386	"
Total	=	1506	Anu

Number weight $\frac{1506}{18} = 83.66$

XENON



META-XENON

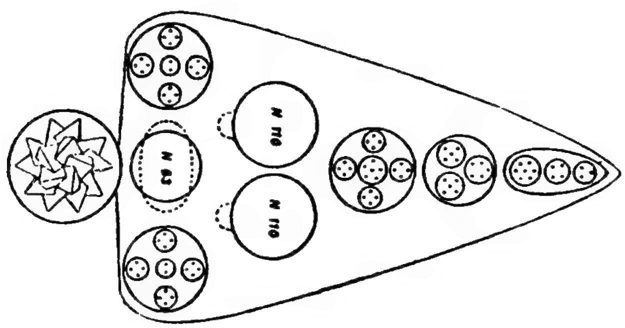


FIG. 152. XENON

ATOMIC NO 54

XENON

The *central globe* is Ne120.

Star. Each arm of the star contains the constituents of Krypton, with the addition of another N110 globe and two smaller spheres, Xe14 and Xe15.

These are arranged symmetrically as shown in Fig. 152.

Xenon . Ne120+6[Xe15+Xe14+N63+2N110+Ne22+mNe15+Ar14]

Central globe	.	120	Anu
6 arms of 363 Anu	:	2178	"
Total	:	2298	Anu

$$\text{Number weight } \frac{2298}{18} = 127.66$$

Meta-Xenon. Again the isotope, being of higher atomic weight, would make the mean value for the element approach that of science.

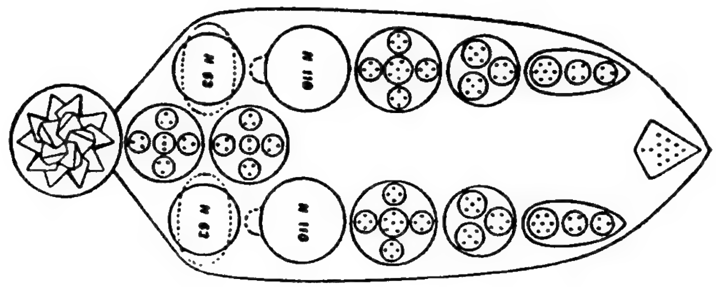
It differs from Xenon in the substitution of the two bodies, 2Xe18, for Xe15 and Xe14, thus making up the difference of seven Anu.

Meta-Xenon . Ne120+6[2mXe18+N63+2N110+Ne22+mNe15+Ar14]

Central globe	=	120	Anu
6 arms of 370 Anu	=	2220	"
Total	=	2340	Anu

$$\text{Number weight } \frac{2340}{18} = 130.00$$

KALON



META-KALON

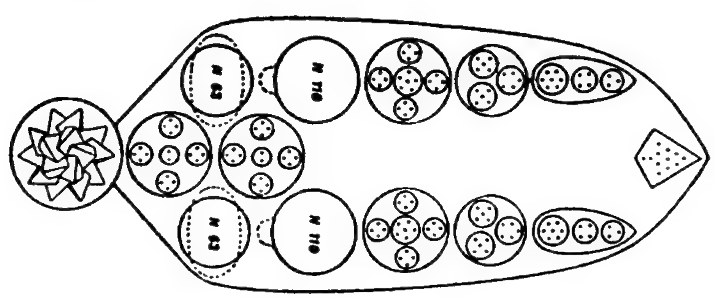


FIG. 153. KALON

ATOMIC NO.—

KALON

The *central globe* is, as usual, Ne120.

Star. The arms are now much more complex. Kalon contains twice the constituents of Krypton, with the addition of Xe14 and Xe15 from Xenon and a curious cone. Ka12, possessing a kind of tail. Fig. 153.

Only a few atoms of Kalon and Meta-kalon have been found in the air of a fair-sized room. This probably accounts for the fact that they have not yet been isolated by science.

Kalon = Ne120+6[Xe15+Xe14+2N63+2N110+2Ne22+2mNe15+2Ar14+Ka12]

Central globe	=	120	Anu
6 arms of 489 Anu	=	2934	,,
Total	=	3054	Anu

$$\text{Number weight } \frac{3054}{18} = 169.7$$

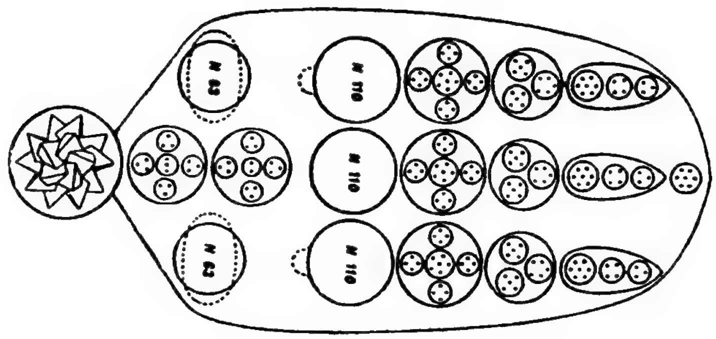
Meta-Kalon. The isotope contains seven extra Anu, made up, as in the case of Xenon, by the substitution of two mXe18 for Xe15 and Xe14.

Meta-Kalon = Ne120+6[2mXe18+2N63+2N110+2Ne22+2mNe15+2Ar14+Ka12]

Central globe	=	120	Anu
6 arms of 496 Anu	=	2976	,,
Total	=	3096	Anu

$$\text{Number weight } \frac{3096}{18} = 172.00$$

RADON



META-RADON

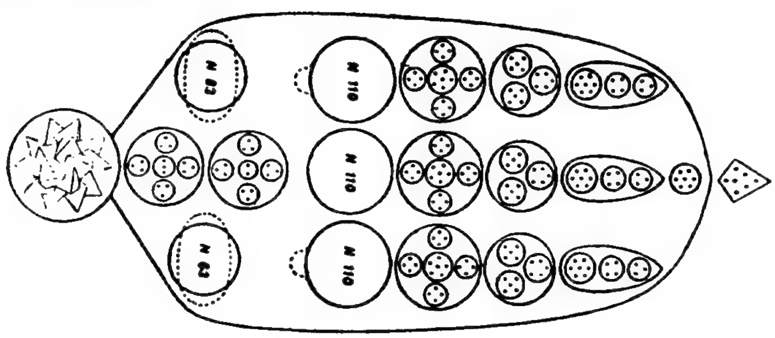


FIG. 154. RADON

ATOMIC NO 86.

RADON

Scientists place Radon in this group of the inert gases. It was first known as Radium Emanation and is formed by the action of the powerful vortex of Radium.

The *central globe* is, as usual, Ne120.

Star. The six arms each contain three columns.

Radon = Ne120+6 [Xe15+Xe14+2N63+3N110+3mNe22+3mNe15+3Ar14+I.7]

Central globe	—	120	Anu
6 arms of 645 Anu	=	3870	„
Total	=	3990	Anu

Number weight $\frac{3990}{18}$ = 221.66

Meta-Radon. The meta variety of Radon is extremely rare. It is also noteworthy for the irregularity that in its meta-variety each arm has the extra seven Anu outside the arm, and not within it.

Meta-Radon = Ne120+6[Xe15+Xe14+2N63+3N110+3mNe22+3mNe15+3Ar14+I.7 +mRn.7]

Central globe	=	120	Anu
6 arms of 652 Anu	=	3912	„
Total	=	4032	Anu

Number weight $\frac{4032}{18}$ = 224.0

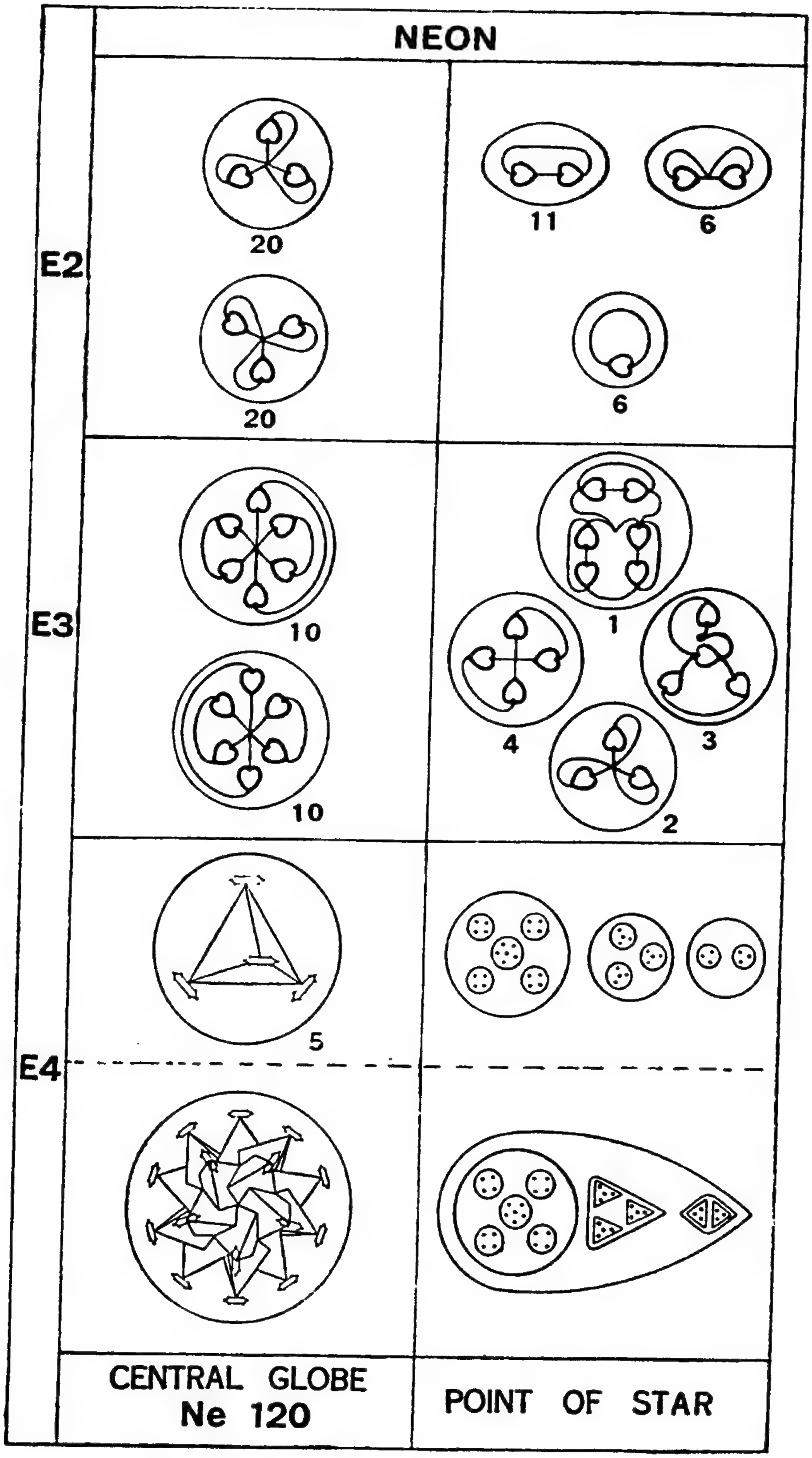


FIG. 155. DISINTEGRATION OF NEON

DISINTEGRATION OF THE STAR GROUP

DISINTEGRATION OF NEON

In the first stage of the disintegration of Neon *on the E4 level* the star gives its central globe and six ovoids from the six points of the star. The globe, Ne120, then breaks up further, giving its five tetrahedrons Ad24. The ovoids each liberate three spheres containing 22, 12 and 6 Anu.

On the E3 level the Ad24 each give four Ad6, and the spheres a sextet, four quartets of a cross type, three quartets of the pyramid type and two triads.

On the E2 level the Ad6 each give two triplets and the other groups break up into duads and units.

Many of the component parts of the elements in this group are familiar and their disintegration may be followed under other elements.

Fig. 156 shows the elements of the Star Group in a condensed form, from which their relationships can be studied.

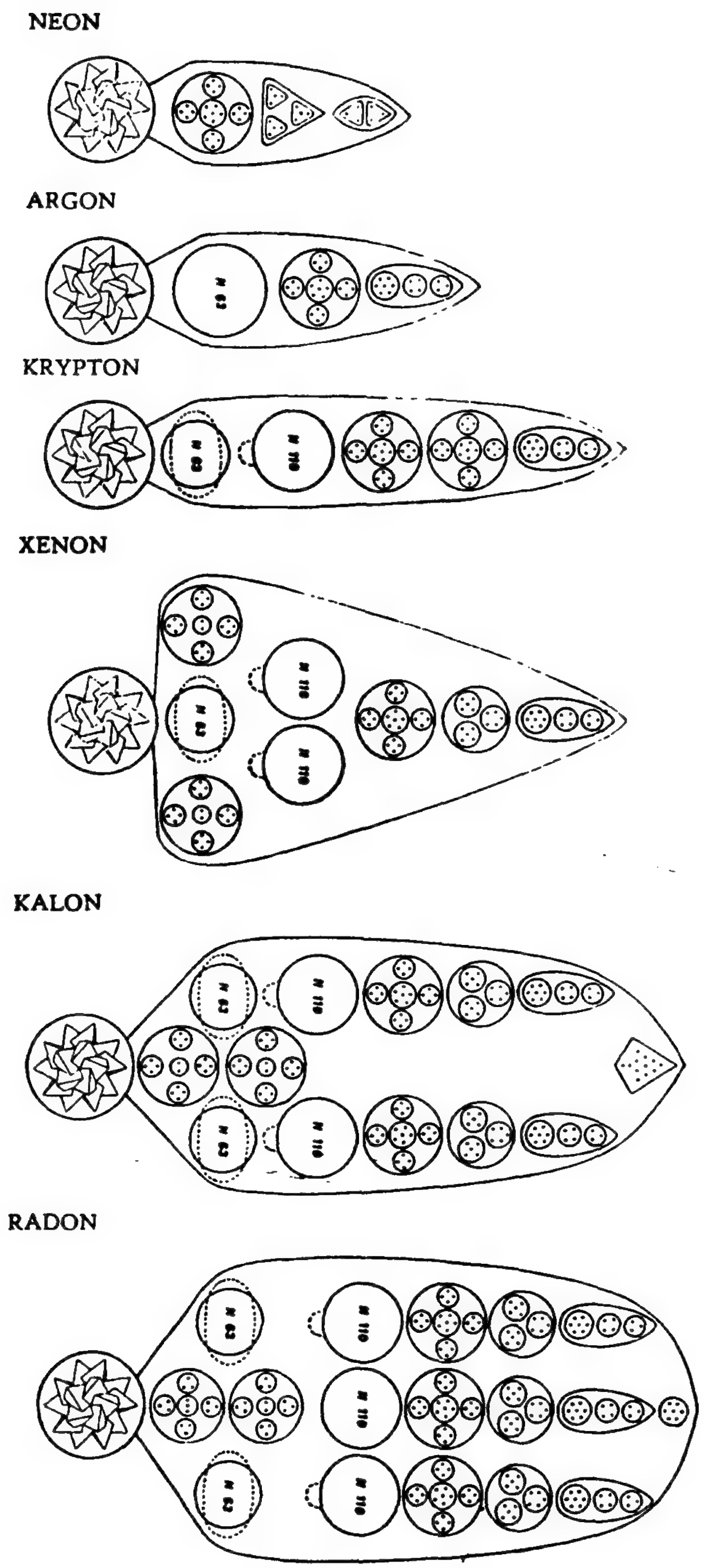
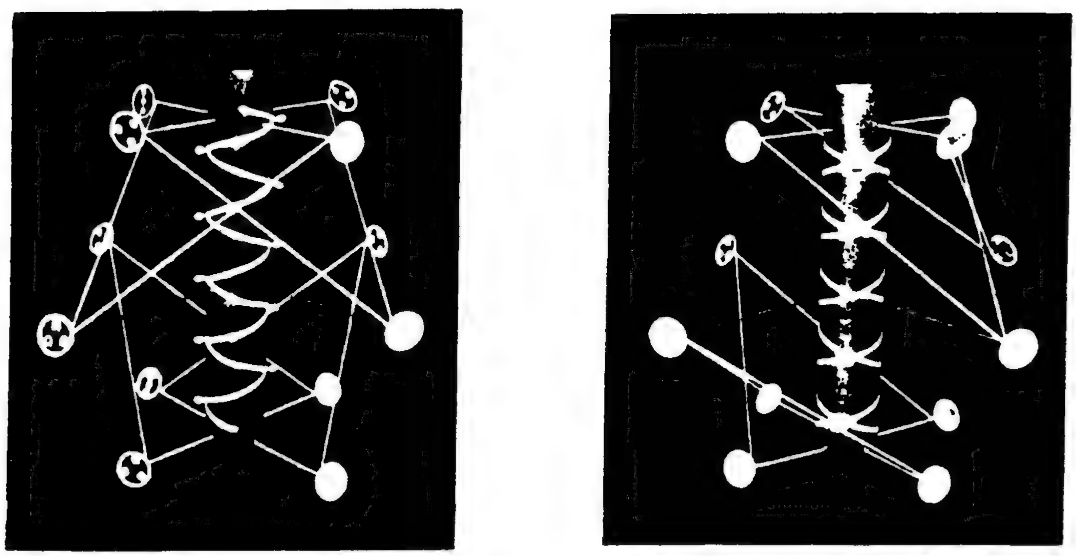


FIG. 156. THE STAR GROUP



a *b*

FIG. 157. THE MOLECULE OF WATER, H_2O.

CHAPTER XIII

COMPOUNDS

A CHEMICAL compound is formed when two or more different atoms unite to form a new substance. When a compound is observed by clairvoyance it is seen that the atoms do not usually remain separate but that a mingling of the component parts of the constituent atoms takes place. Sometimes the atoms maintain their individuality and sometimes they are very much broken up, but their characteristic groups can easily be traced by reference to the diagrams of the atoms previously given.

The compounds which have been examined are here arranged as far as possible in related groups, first inorganic and then organic compounds.

As with the elements, the diagrams, though sometimes taken from photographs of actual models, are inadequate, and the reader must use his imagination to reconstruct the true molecule.

WATER H_2O

Each molecule of water is composed of two Hydrogen atoms and one Oxygen. Fig. 157 shows what happens when these atoms combine. The Oxygen double snake retains its individuality, as indeed it usually does, while the two Hydrogen atoms arrange themselves round it. Fig. 157a shows the Hydrogen atoms as forming with the Oxygen a sphere. Fig. 157b, another photograph of the same model taken from a different point of view, shows that each Hydrogen atom keeps its separate individuality.

THE HYDROXYL GROUP OH

This group is one of a number of distinct groups which keep their form and can be distinguished in many compounds. In the centre we find the double Oxygen snake. The Hydrogen atom divides into its two triangles and floats above and below the Oxygen. It will be noticed that when forming compounds the atoms often break up into the groups which they form when they disintegrate to the E4 level. This shows the importance of a study of the disintegration of the elements. It would seem that the E4 level is connected with chemical change. The appearance of the group is shown in Fig. 158. The upper triangle is positive, and the lower negative. Though these two triangles of Hydrogen are separated, with Oxygen in between, they are still bound to each other, and a linking force goes through the middle of the Oxygen snake. Each triangle rotates flat, and while rotating, sways a little up and down, as the lid of a pot rotates before it finally settles down.

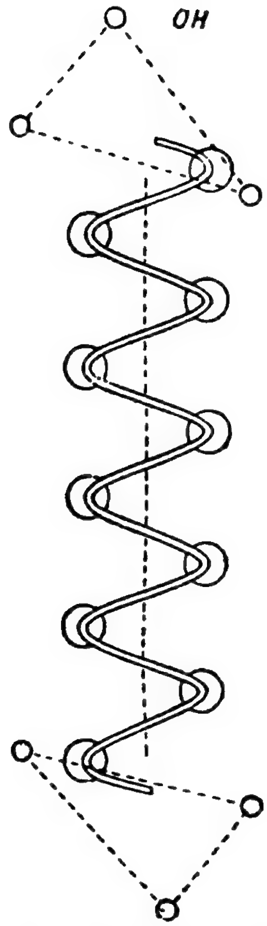


FIG. 158. THE HYDROXYL GROUP OH

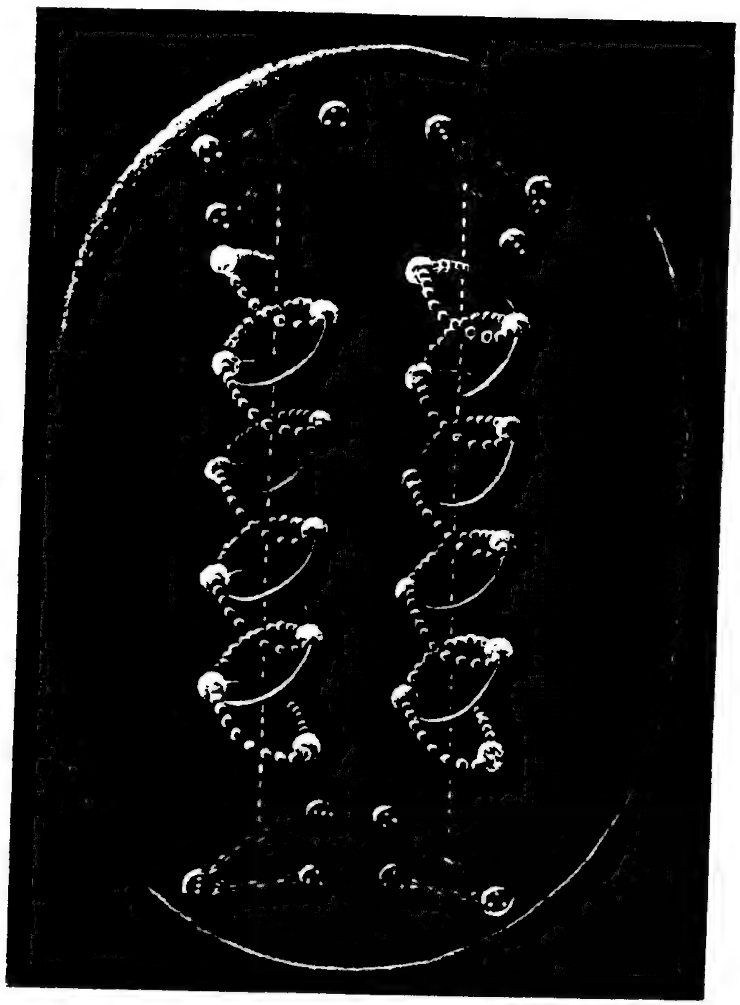


FIG. 159 HYDROGEN PEROXIDE H_2O_2

HYDROGEN PEROXIDE H_2O_2

This substance appears to be related to the Hydroxyl group rather than to Water. The appearance of Hydrogen Peroxide is shown in Fig. 159. In drawing each Oxygen atom, the artist has purposely left out the small bodies of two Anu in one of the snakes, in order to make the Oxygen more graphic. Here we have two OH side by side, except that in the second OH the polarity is reversed, and the upper triangle of Hydrogen is negative and the lower positive. The two OH groups do not give the impression of being attracted to each other. But, under certain conditions, one Oxygen atom flies off, and then the two Hydrogen triangles associated with it are attracted to the triangles of the neighbouring OH, and form H_2O, Water, as in Fig 157.

An interesting question is why H_2O_2 should be unstable. Investigation shows that there is some kind of a radiation from the earth: whether this force of radiation is due to the sun or not was not investigated. But the earth is steadily pouring out this radiation, and it rushes upwards. As the radiation rushes upwards, it hits the upper Hydrogen triangles which are rotating. Usually the impact makes no difference, as the upper and lower triangles are united by the bond which goes through the Oxygen atom, and the impact of the radiating force is not strong enough to break the link. But it happens that as the triangle rotates, it gets tilted sideways and, if the force from the earth hits it at its moment of greatest tilt, the triangle may be thrown off its balance, thus breaking the link with the lower triangle. Just as a metal disc can be kept revolving at the end of a jet of steam so long as the jet is directly underneath, so is the Hydrogen triangle as it rotates. But just as, if the steam hits the disc when it is aslant, the disc flies off, so it is with the upper triangle when the force from the earth hits it. When it is so thrown off its balance, and the Oxygen atom is released and flies off, that triangle at once flies to the positive Hydrogen triangle nearest to it. The positive Hydrogen triangle below then flies to its neighbour, the negative Hydrogen triangle of the neighbouring OH. The result is a molecule of Water.

SODIUM HYDROXIDE NaOH

The arrangement of Oxygen and Hydrogen to make the Hydroxyl group OH was shown in Fig. 158. Sodium has been already described as dumb-bell. The combination Sodium Hydroxide NaOH is as in Fig. 160.

The central rod of Sodium enters inside the Oxygen atom, retaining at either end its floating funnels. The rod has plenty of space for its movement without touching the Oxygen atom, because the latter has become much fatter and shorter.

The two triangles which make up Hydrogen are separated, as in Hydroxyl, and float above and below Sodium. In Hydroxyl these two triangles are united by a bond which goes through the Oxygen atom. That bond still persists in NaOH, though Sodium has come in the way. We shall see later in Hydrochloric Acid HCl, where there takes place a similar disruption of Hydrogen, the reason for the intense activity of NaOH, when seen clairvoyantly, and probably also for its burning quality.

It is here noteworthy that the chemical combinations examined clairvoyantly produce effects which are not solely mechanical. They radiate a quality of *feeling* which, however rudimentary, causes a reaction in the observer. Thus the observer, even without any chemical knowledge, would note that NaOH is not a pleasant thing, and that it feels as though it would burn.

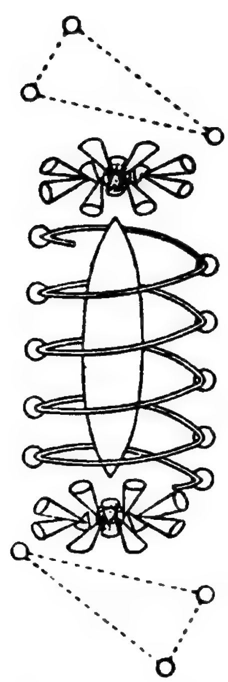


FIG. 160. SODIUM HYDROXIDE NaOH

HYDROCHLORIC ACID HCl

One atom of Hydrogen and one of Chlorine combine to make a molecule of Hydrochloric Acid. Chlorine is a dumb-bell of the same shape as Sodium. The combination of Hydrogen and Chlorine is as shown in Fig. 161.

The first noticeable change in Chlorine is that its central rod is shorter and fatter than usual, as if compressed. The second change is in the two spheres, of ten Anu each, from which, as the centre, the funnels at either end of the Chlorine atom radiate normally; these two spheres are pulled out of place. All this distortion is due fundamentally to the two triangles of Hydrogen. These two, in their normal state when making the unit of Hydrogen, are linked in a special way, one going through the other. They are separated in Hydroxyl but the linking bond goes through the Oxygen in between. In HCl the bond still remains, though Chlorine comes in between.

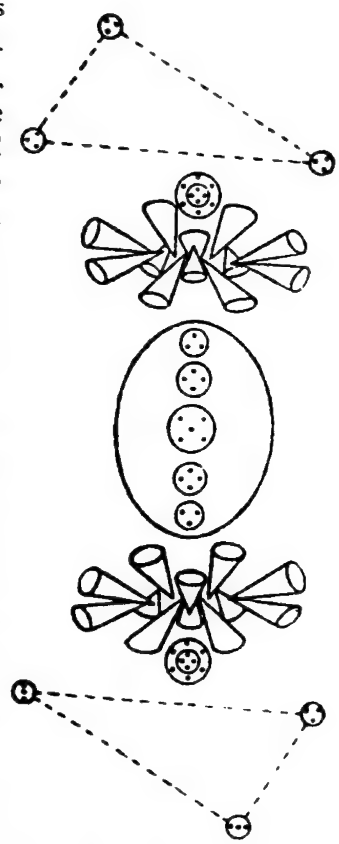


FIG. 161. HYDROCHLORIC ACID HCl

In Chlorine each sphere of ten Anu, at top and at bottom, is linked to the little sphere of five Anu in the centre of the rod. This sphere of five is the grand centre of Chlorine. The two spheres of ten are normally held bound to it, and remain at a definite distance from it. But when one half of Hydrogen floats over the Na10 at the top, and the second half floats similarly under the Na10 at the bottom the spheres are displaced, owing to the strong pull exercised over them by the two halves of Hydrogen. But just as they are being displaced towards the Hydrogen, they are pulled back into place by the grand centre of Chlorine, the little sphere of five Anu. The result is like a spring coiled up and compressed; the spring strives to get back to its normal condition. This condition of tension may account for the power of Hydrochloric Acid to eat into things, for as it eats into things probably the spring strain diminishes.

There is only a slight change in the funnels which radiate from each Na10 forming the top and bottom of Chlorine. The twelve funnels in each group still radiate, pointing alternately up and down, but they are nearer to one another than is the case when Chlorine is by itself.

COMMON SALT NaCl

The molecule of common Salt, NaCl, is composed of one atom of Sodium and one atom of Chlorine. Both are of the dumb-bell type. Each consists of a central rod, at each end of which is a sphere, and from each of the two spheres revolve twelve funnels. Detailed descriptions of both have already been given. Fig. 162 shows the salient points of the two elements, a diagram being given of the central rod, of a sphere and of a funnel.

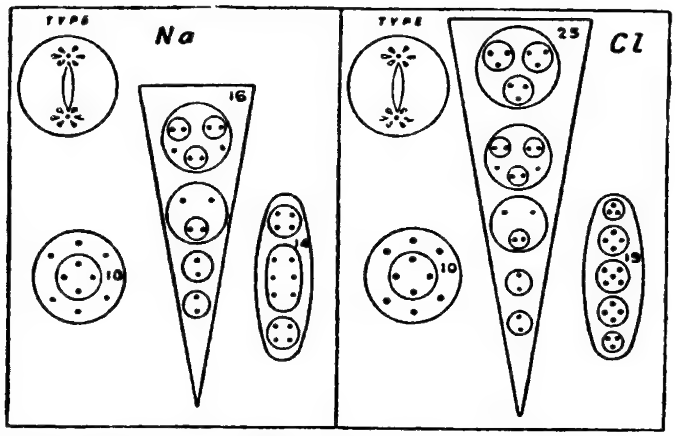


FIG. 162. COMPONENTS OF SODIUM AND CHLORINE

In the central rod of Sodium, there appears a body of six Anu. This body is positive, and appears to act as the centre of the whole atom.

When Sodium and Chlorine combine to make a molecule of Salt, the constituent bodies arrange themselves so as to make a cube. Fig. 165. The 24 Chlorine funnels radiate from the centre of the cube, in groups of three, to the eight corners of the cube; the 24 shorter Sodium funnels radiate, in groups of two, to the 12 middle points of the twelve edges of the cube. A rearrangement takes place in the bodies composing the two rods and in the spheres at each end of the dumb-bell. From the two rods, six groups are made to radiate from the centre to the six middle points of the six faces of the cube. Each of these six groups is as in Fig. 163.

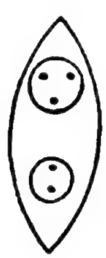


FIG. 163. SMALL GROUP IN NaCl

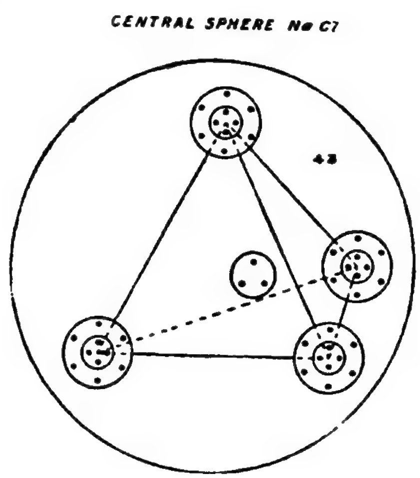


FIG. 164. CENTRE OF NaCl

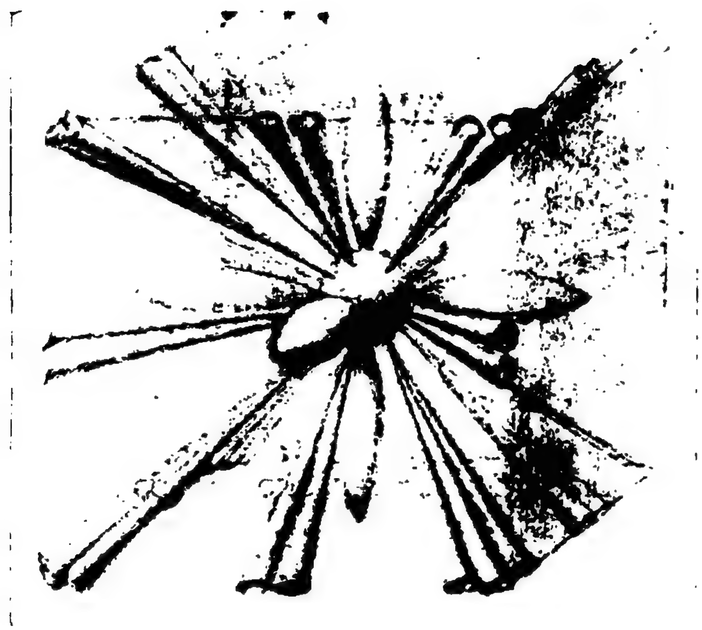


FIG. 165 MOLECULE OF SALT NaCl

Counting up the individual Anu in Sodium and Chlorine, all are accounted for in the molecule of salt.

SALT :	24 Chlorine funnels to eight corners of cube	600
	24 Sodium funnels to the middles of twelve edges of cube	384
	6 bodies of 5 Anu to the middles of six faces of cube	30
	Central sphere	43
		1,057

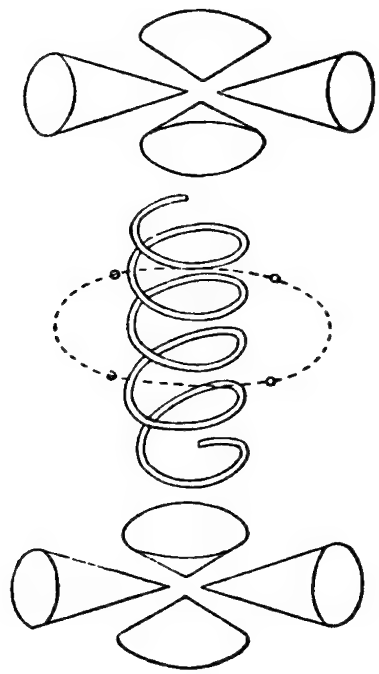


FIG. 166. CARBON MONOXIDE CO

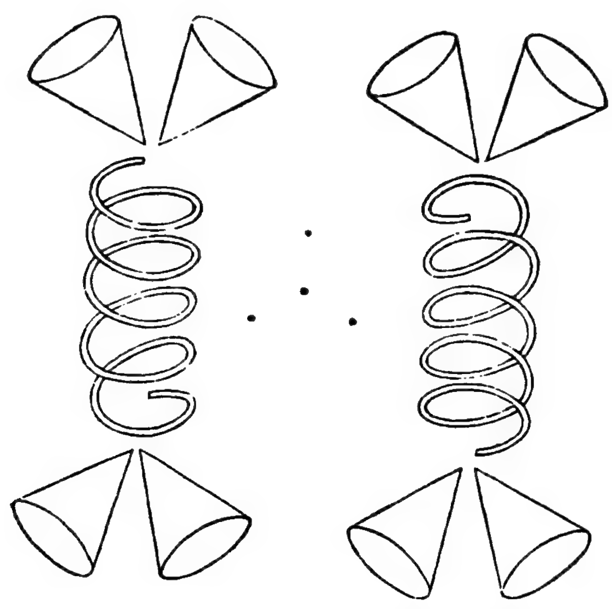


FIG. 167. CARBON DIOXIDE CO_2

CARBON MONOXIDE CO

Carbon Monoxide is a simple combination of Carbon and Oxygen. Carbon is a group of eight funnels pointing to the eight faces of an octohedron. Four of its funnels are positive and four negative, with a single Anu linking each pair. In Carbon the grand centre is composed of four positive Anu, not linked to each other.

When combined with Oxygen, the Carbon is broken up. The appearance of the combination is shown in Fig. 166.

The Oxygen atom, unchanged, remains upright, and round its centre but outside there revolve like four moons the four Anu of the Carbon centre. The eight funnels arrange themselves as two groups of four each, and float at the top and bottom of the Oxygen atom. The four funnels, two of which are positive and two negative, revolve on a horizontal plane. They are however flattened, truncated, more pear-shaped than funnel-like.

It should here be mentioned that the particular particle of Carbon Monoxide which was examined was made occultly, that is, not by a laboratory process. The clairvoyant investigator made a molecule of Carbon Monoxide by taking Carbon Dioxide CO_2 and removing from it one Oxygen atom. The resultant CO was then examined. But the Carbon Monoxide made in a laboratory may show some differences from the CO molecule described above.

CARBON DIOXIDE CO_2

In this combination, we have one Carbon and two Oxygen atoms. Their appearance is as in Fig. 167.

The two Oxygen atoms revolve round a common centre, which is composed of the four loose Anu which form the Carbon centre. The four Anu are not at the corners of a tetrahedron; while one of them is in the middle, the remaining three are arranged askew round it.

At either end of each Oxygen atom, there float two funnels from the Carbon atom. They do not revolve flat as in Carbon Monoxide, but stick out more upright, pointing slightly outwards.

SODIUM CARBONATE Na_2CO_3

Having examined the combination of Carbon with one Oxygen atom and with two Oxygen atoms, the investigation was extended to the configuration of Carbon with three Oxygen atoms. CO_3 does not exist by itself, but only in combination, so Sodium Carbonate Na_2CO_3, as easily procurable, was taken for examination. In this there are two atoms of Sodium, one of Carbon and three of Oxygen. The appearance of the molecule is as in Fig. 168.

The grand centre of the whole combination is still the four loose Anu from the Carbon centre. Round this there whirl upright three Oxygen atoms, at the three corners of a triangle. The two Sodium atoms have placed themselves inside two Oxygen atoms, as in Fig. 160, and the eight Carbon funnels float over the ends of the third Oxygen atom.

It is interesting to note that this triangular arrangement of O_3 has been deduced by Bragg from his X-ray analysis of Calcite and Aragonite, in which the group CO_3 occurs.

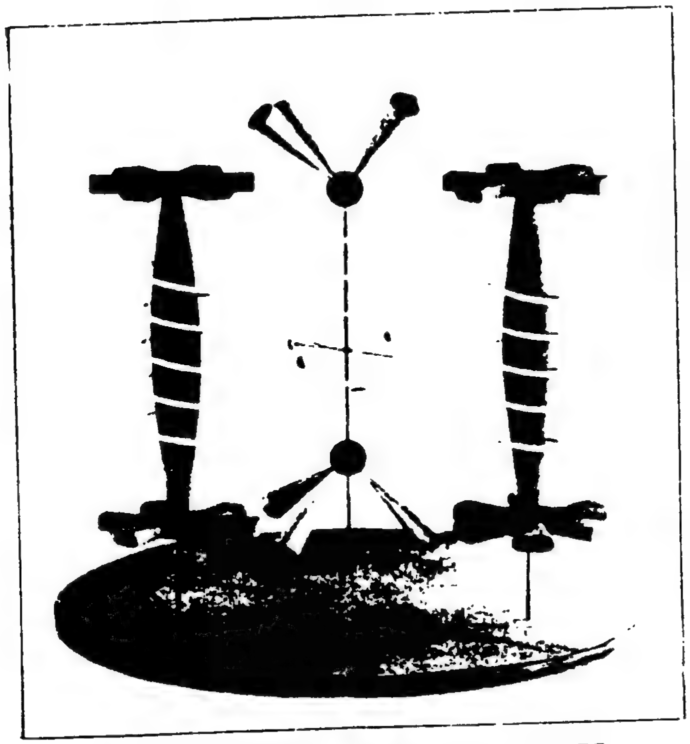


FIG. 168. SODIUM CARBONATE Na_2CO_3

CALCIUM HYDROXIDE

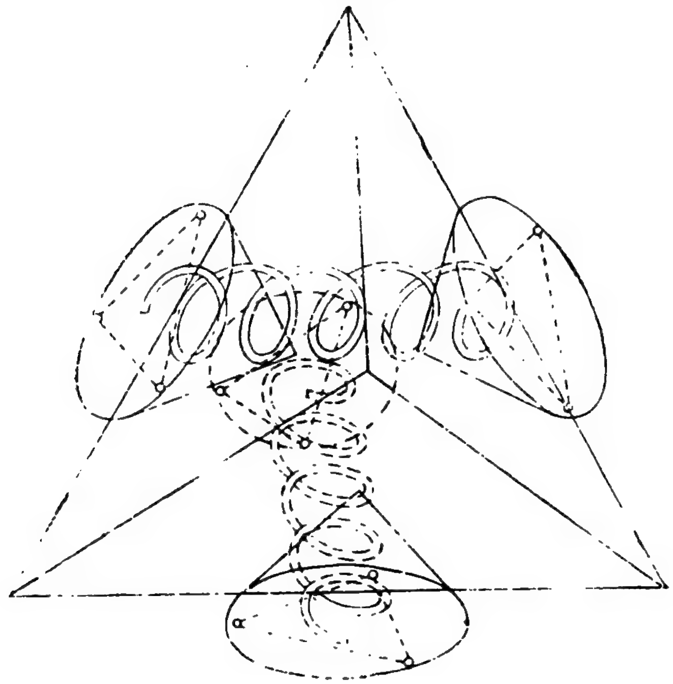


FIG. 169. CALCIUM HYDROXIDE $Ca(OH)_2$

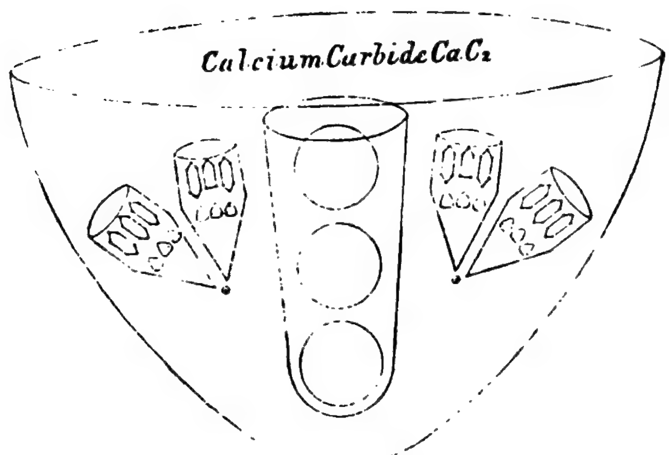


FIG. 170 CALCIUM CARBIDE CaC_2

CALCIUM HYDROXIDE $Ca(OH)_2$

Calcium is a di-valent element, and when investigated by clairvoyant magnification is seen to be composed of four funnels which radiate from a centre to the four faces of a tetrahedron. The centre of Calcium is a sphere of 80 Anu, and each of the four funnels contains 160 Anu.

The appearance of the Hydroxyl group OH is given in Fig. 158.

We can follow the arrangement of Calcium Hydroxide Ca $(OH)_2$ in Fig. 169. Each Hydroxyl group lies at right angles to two funnels of Calcium. The arrangement will be clear if one holds in one's hand a tetrahedron. In Fig. 169 one Oxygen atom, with half-Hydrogen triangles attached to its ends, is shown lying horizontally across at right angles to two Calcium funnels. The second Oxygen atom and its half-Hydrogens will not be seen from the angle of vision selected by the illustrator, as they will be hidden. They are, however, suggested by dotted lines. Calcium has a sphere as its centre. This of course persists in $Ca(OH)_2$, but it is not shown in our figure.

CALCIUM CARBIDE CaC_2

In Calcium Carbide we have one Calcium and two Carbon atoms. In the compound, each Carbon atom divides into four segments, each segment being composed of one positive and one negative Carbon funnel, with their linking Anu.

Calcium has four funnels, directed to the faces of a tetrahedron, and a centre In the combination CaC_2, the Calcium centre remains unchanged, but each Calcium funnel swells out to make room for two segments (each of two funnels) of Carbon, as in Fig. 170, which shows one of the funnels.

CALCIUM CARBONATE $CaCO_3$

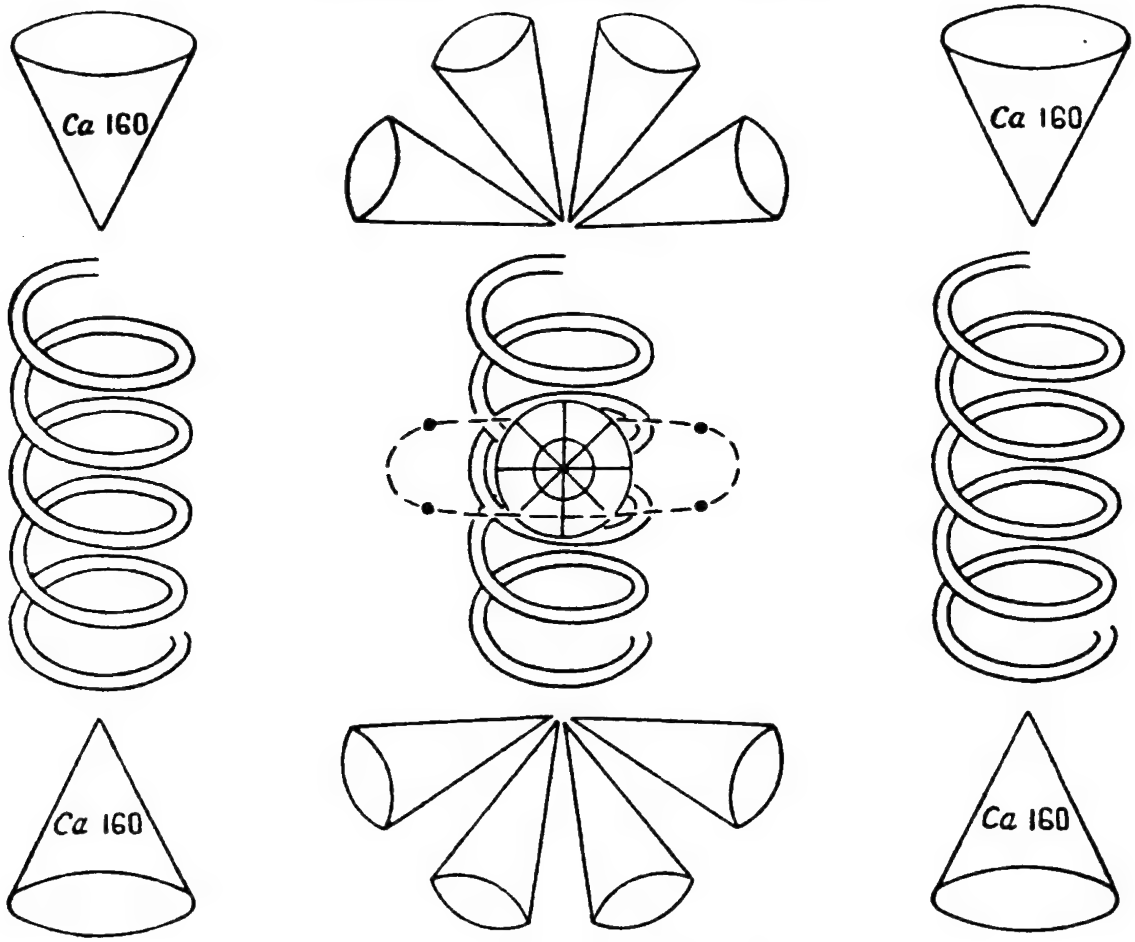


FIG. 171. CALCIUM CARBONATE $CaCO_3$

CALCIUM CARBONATE. $CaCO_3$

In $CaCO_3$ the central globe of Calcium is not broken up and takes the central position. The general arrangement is like that of Sodium Carbonate where the three Oxygen atoms form pillars at the corners of a triangle. In the Sodium Carbonate Na_2CO_3, where we have the same CO_3 group, it will be seen that two of the Oxygen atoms are wound round the Sodium bar. In the case of Calcium Carbonate we again have the three Oxygen pillars but each of the pillars is associated with part of the Calcium or of the Carbon. Fig. 171.

The central globe of the Calcium, Ca80, is in the middle of the molecule, and the four Anu from the Carbon atom revolve round it like satellites. One of the Oxygen pillars has four Carbon funnels at the top and four at the bottom, and the other two Oxygen atoms each have a funnel of Calcium, Ca160, at top and bottom. Thus they divide the Calcium between them. The three Oxygen atoms are at the points of a triangle and move round in a circle. Because of the heavy centre Ca80, there is a slight curvature inward of the Oxygen pillars which is not shown in the diagram.

CALCITE AND ARAGONITE $CaCO_3$

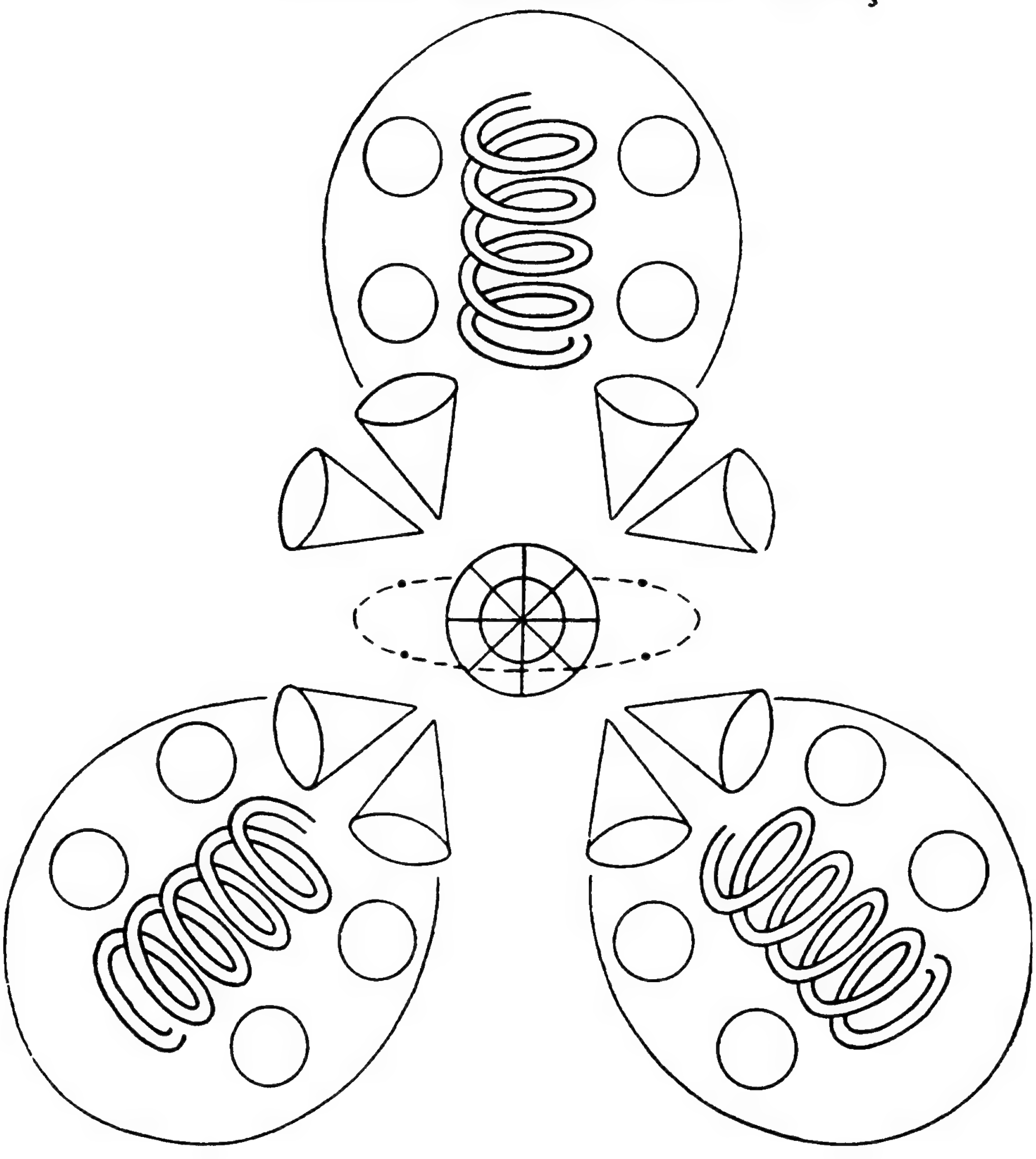


FIG. 172 CALCITE AND ARAGONITE $CaCO_3$

CALCITE AND ARAGONITE $CaCO_3$

Both Calcite and Aragonite are crystalline forms of Calcium Carbonate. In the form given in Fig. 172, the three Oxygen atoms radiate horizontally. The Calcium centre, Ca80, with the four Anu from the Carbon atom, forms the centre as before. The four Calcium funnels break up. Each funnel, Ca160, contains three spheres, so we have 12 spheres in all. These are accounted for by the 12 spheres, four round each Oxygen atom. The eight funnels of the Carbon are placed symmetrically round the centre.

COPPER HYDROXIDE $Cu(OH)_2$

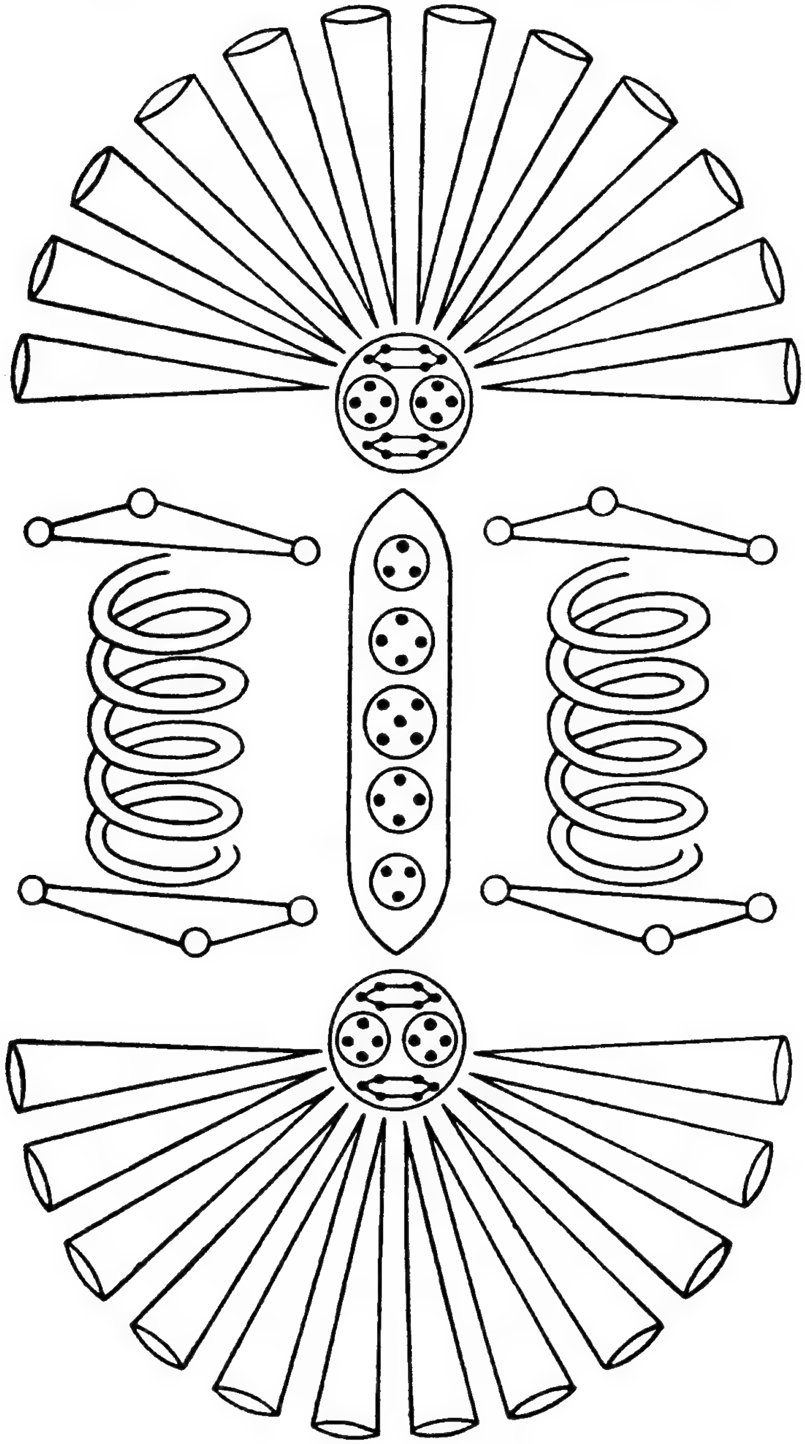


FIG. 173. COPPER HYDROXIDE $Cu(OH)_2$

COPPER HYDROXIDE Cu(OH)

Copper Hydroxide is somewhat like a flat mango. Fig. 173. The Copper atom, which is dumb-bell in shape, stands in the middle. Its central rod is thin and elongated and from its ends the twelve funnels radiate from the globes, Cu20. As the funnels are fairly heavy they are long and extend to some distance. Under the radiating funnels there appears on either side of the dumb-bell bar, a Hydroxyl group, just as if when an umbrella is opened there is the central stick but under the cover of the umbrella two groups.

The whole makes a very beautiful form.

SULPHURIC ACID H_2SO_4

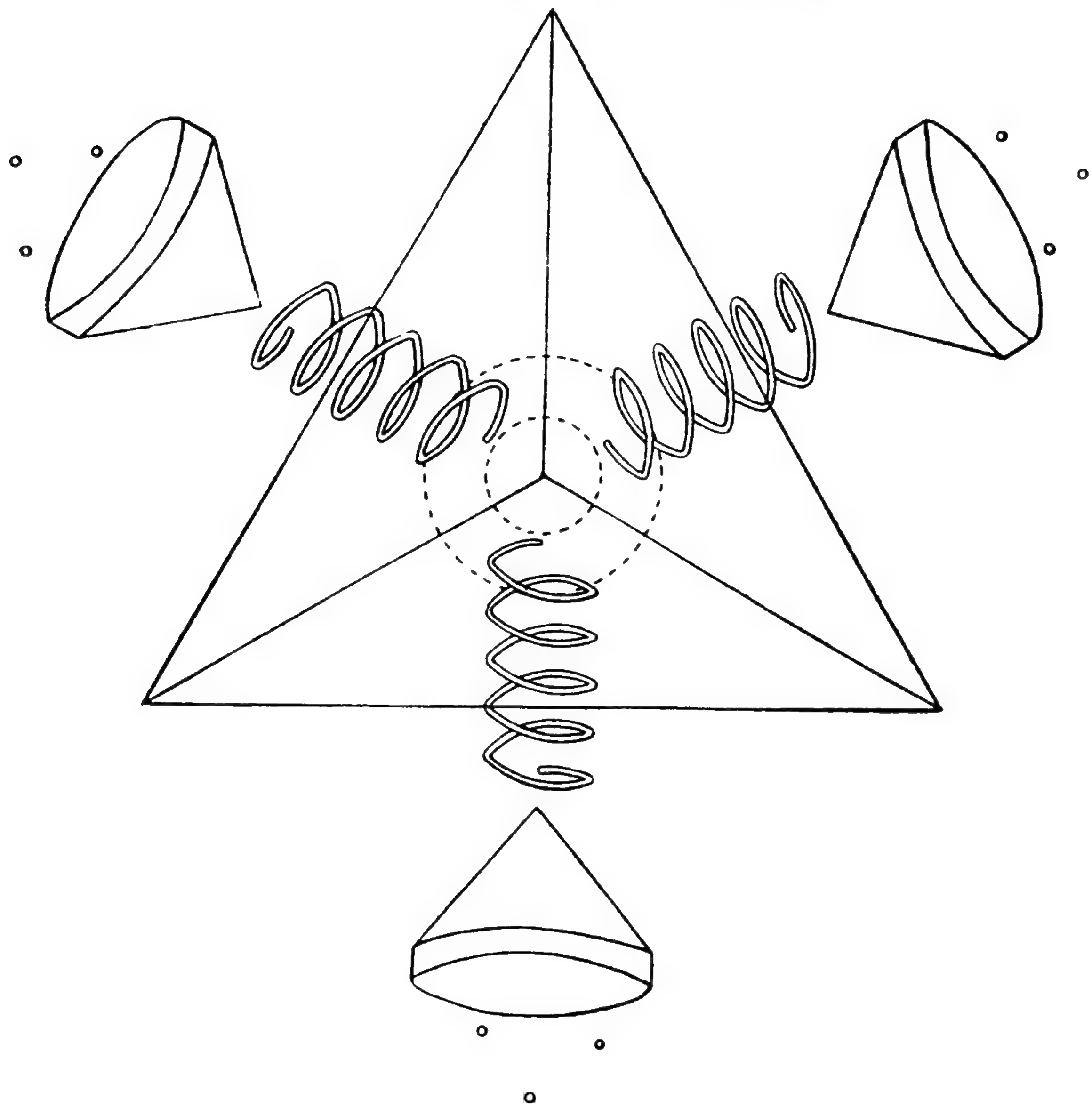


FIG. 174. SULPHURIC ACID H_2SO_4

SULPHURIC ACID H_2SO_4

The Sulphur atom is a tetrahedron having four funnels each containing nine S.16 in a ring. In the compound H_2SO_4 the Oxygen atoms seem to have acted in their usual manner and broken up the Sulphur atom to some extent. They have pushed themselves into the centre and pushed out the funnels. Each of the four Oxygen atoms radiates from the face of a tetrahedron. At the end of each Oxygen snake is a funnel of Sulphur. and over the mouth of the funnel floats half a Hydrogen atom.

In Fig. 174 only three sides of the tetrahedron are shown, the fourth being concealed. This must be imagined at the back, making up the constituents of H_2SO_4.

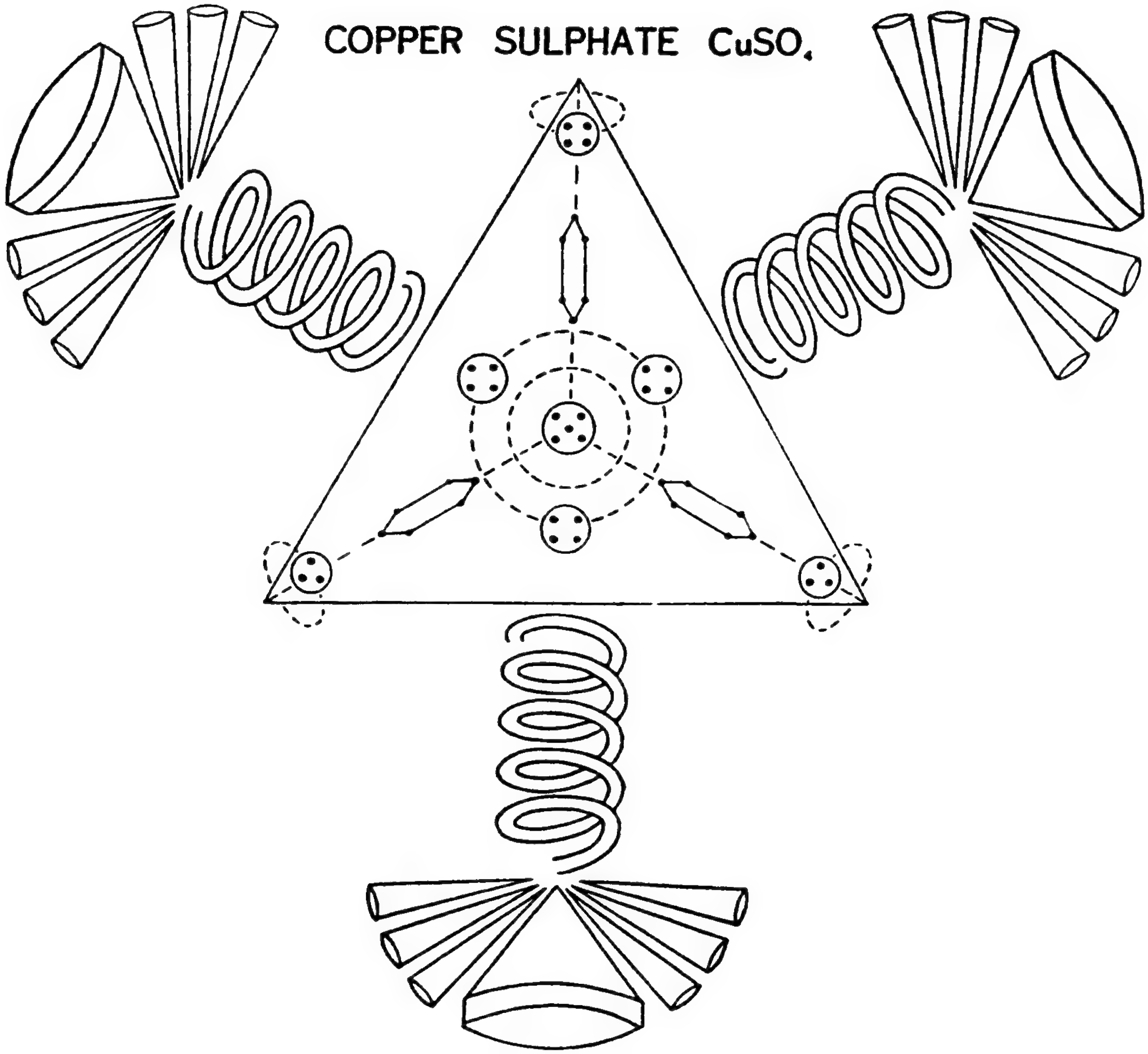


FIG. 175. COPPER SULPHATE $CuSO_4$

COPPER SULPHATE $CuSO_4$

The general appearance of Copper Sulphate is as in the diagram of Sulphuric Acid. As in Sulphuric Acid, the fourth group which completes the tetrahedron in each case is not shown. The tetrahedral form is indicated, but this is not intended to represent an actual boundary. Fig. 175.

In the tetrahedron there appears a grand centre. In the middle of this centre is a body of five Anu from the central bar of the Copper atom. Round these five there radiate to the four corners of a tetrahedron the four groups Ad6, from the two globes of Copper. Then, pointing to the faces of the tetrahedron, appear four balls of four Anu. These four balls come also from the two globes of Copper. The whole centre-piece acts as a unit though *not* enclosed in a sphere wall.

There remain the two bodies of three Anu and two groups of four Anu from the bar of Copper. These are at the corners of the tetrahedron but have a peculiar motion like that of a fly round the corners of the tetrahedron, first one corner and then the next, waltzing round by themselves. The observer wonders whether they are not somehow trying to get back to the others, but cannot. An experiment was tried of releasing the whole thing, and it was then found that these groups jumped back into their places in the bar with great avidity.

From this centre radiate the Oxygen atoms through the four faces of the tetrahedron, and at the end of each Oxygen atom is a funnel of Sulphur, as in Sulphuric Acid. Round each funnel of Sulphur are placed six funnels of Copper, in two groups of three, all pointing to the centre.

It will be seen that, allowing for the fourth group which is not shown in the diagram, all the constituents of the elements in the compound are accounted for.

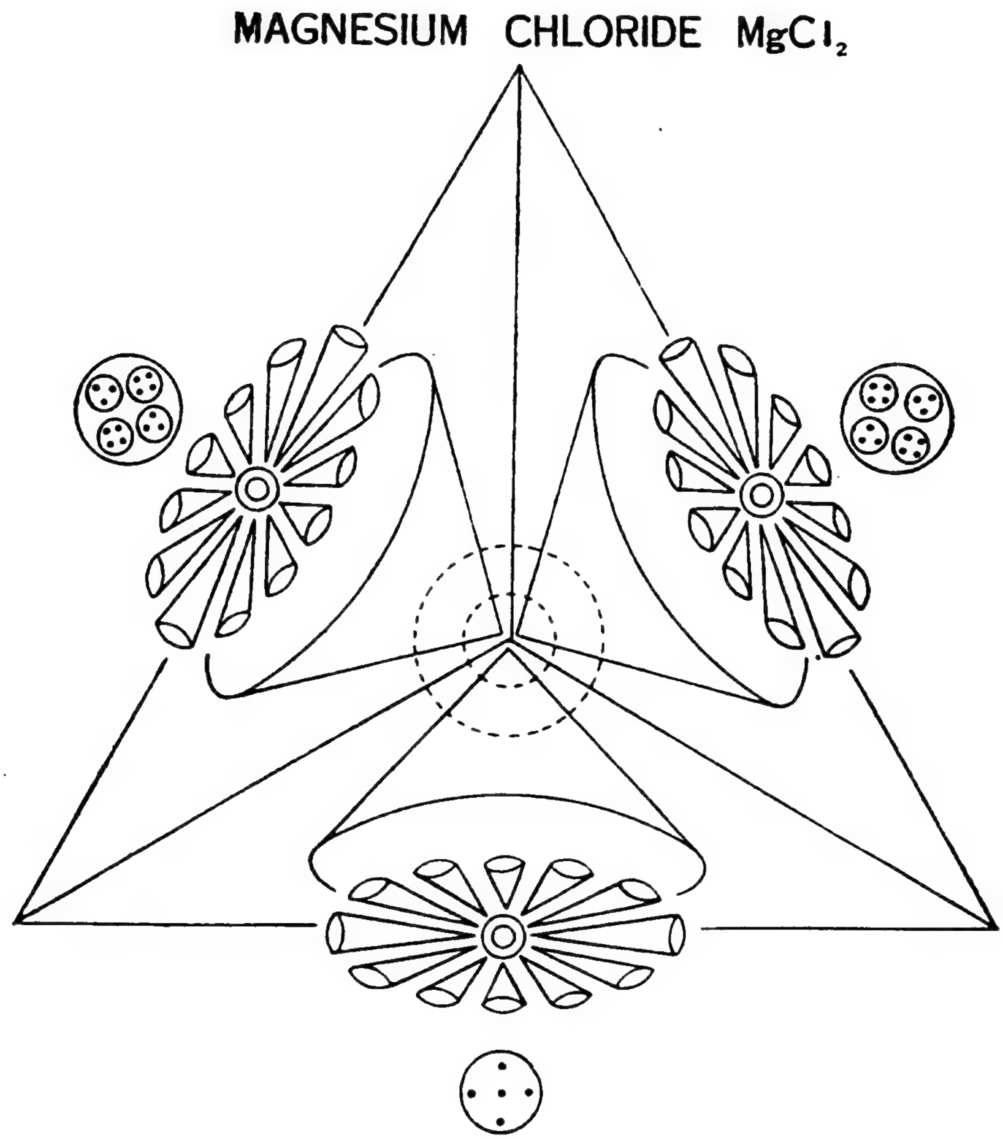


FIG. 176. MAGNESIUM CHLORIDE $MgCl_2$

MAGNESIUM CHLORIDE $MgCl_2$

Magnesium is a tetrahedron. It has no centre but has four rather wide funnels, each containing three segments.

Chlorine has a dumb-bell shape. The centre of a Chlorine atom is the group of five Anu in the central bar or rod. This body of five Anu is described as hard and positive. Positive bodies are hard, and negative softer and more spongy. When the Chlorine breaks up each body of five Anu takes one end of a Chlorine atom with it and floats over a negative funnel of Magnesium. The remaining four bodies from the central rod, two of four Anu and two of three Anu, go with the second end of a Chlorine atom and float over a positive funnel. These four bodies revolve round a common centre of gravity, not in a perfectly flat surface. The 12 funnels at the ends of the Chlorine atoms arrange themselves in a flower shape round their own central globe. As has been said, only three funnels can be shown. Two Magnesium funnels have the flower and a group of four bodies, while two Magnesium funnels have the flower and the group of five Anu. One of these latter groups is not shown. Thus all the constituents of the Magnesium and the Chlorine atoms are accounted for.

FERRIC CHLORIDE $FeCl_3$

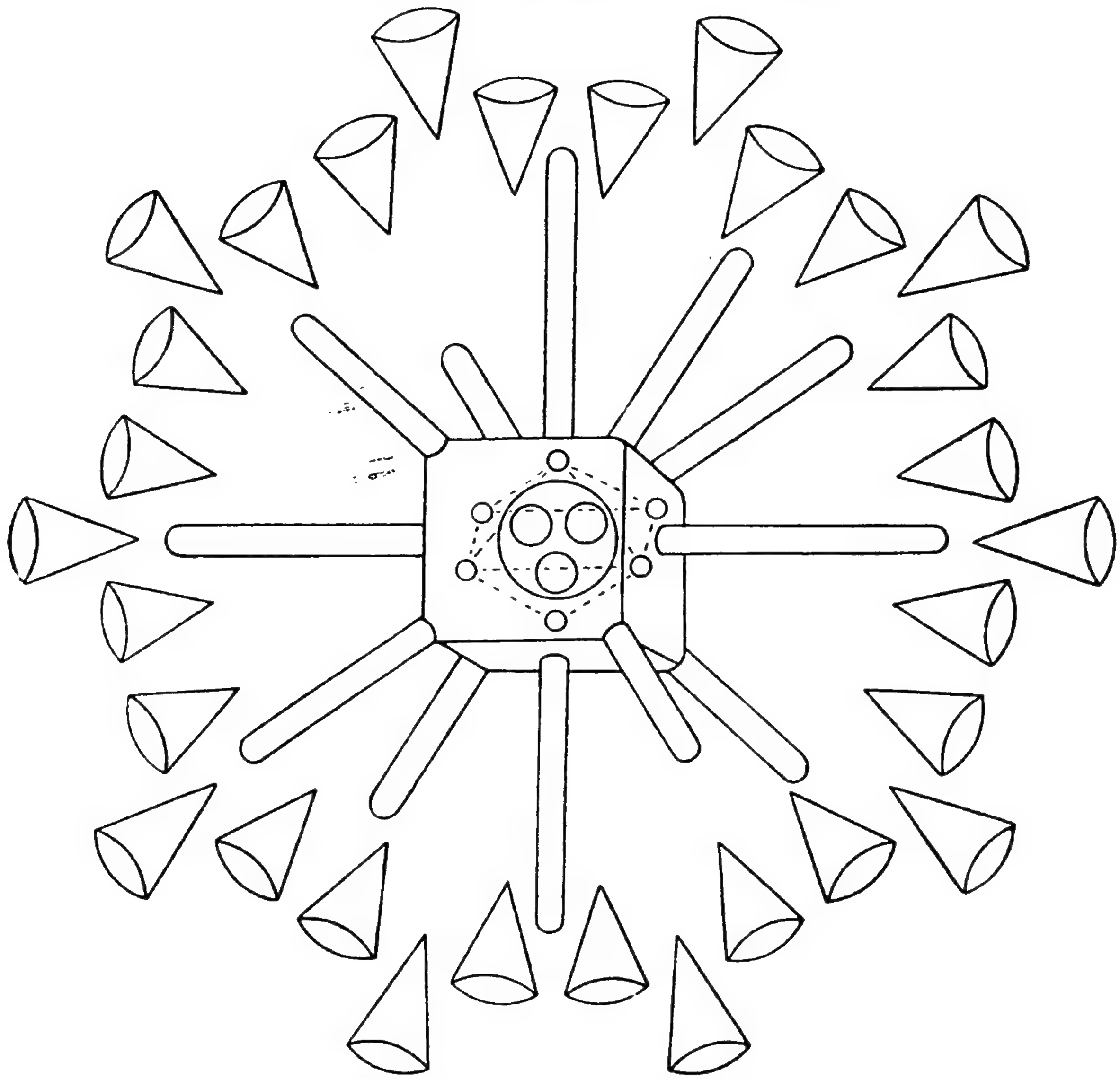


FIG. 177. FERRIC CHLORIDE $FeCl_3$

FERRIC CHLORIDE $FeCl_3$

There are to be accounted for in Iron, fourteen bars radiating from a cube, as in the diagram of the Bars group, then three Chlorine atoms giving three rods, three Cl.19 groups forming the centre of the dumb-bell of Chlorine and six flowers, each with a centre Na10 and 12 funnels, making 72 funnels in all.

In the molecule $FeCl_3$, the three rods of Chlorine make three spheres and place themselves at the centre of the cube. Round these, but still inside the bars of Iron, rotate the six Na10 balls, each at the corner of an octahedron. These make a grand centre inside the Iron atom. The bars of Iron stick out from the cube on to the surface of a sphere. Fig. 177.

In the diagram it is not possible to show all the funnels, so 36 only are shown. They are in groups of three and are intended to be thought of as sticking out like spikes.

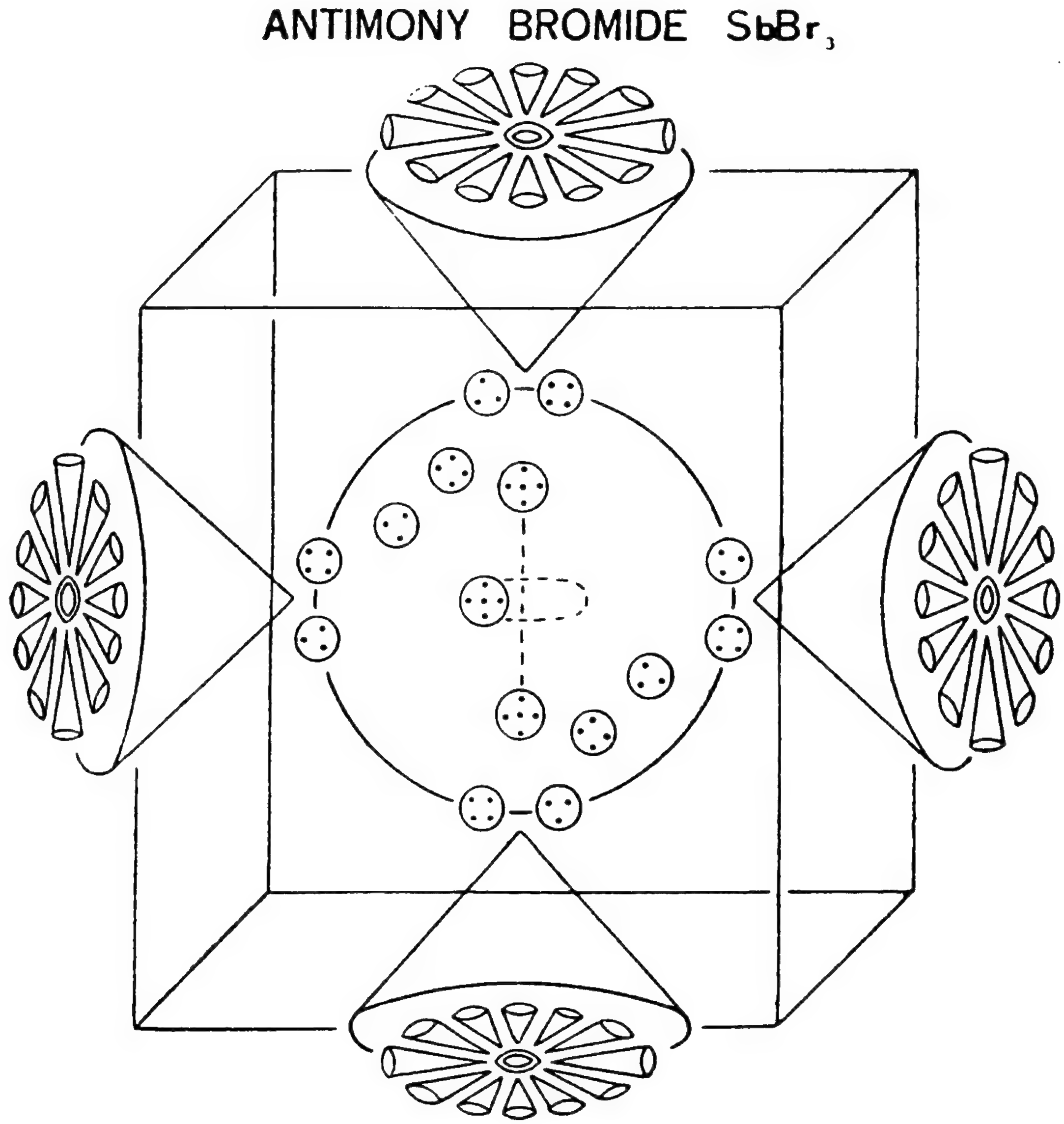


FIG. 178. ANTIMONY TRIBROMIDE $SbBr_3$

ANTIMONY TRIBROMIDE $SbBr_3$

Antimony is a cube. It has six funnels and no centre.

Bromine is a dumb-bell with its rod or bar like that of Chlorine, Cl.19, and having a globe and twelve funnels at each end.

In Antimony Bromide the Antimony is not much changed save that parts of the Bromine atoms enter into the centre of the cube and form a grand centre. Fig. 178.

The Bromine atoms break up. Over each Antimony funnel there floats one flower of 12 funnels and a globe. The six funnels and flowers point to the faces of a cube. In the diagram the cube is indicated but only four of the six funnels and flowers are drawn.

The three rods break up and rearrange themselves as a grand centre within the cube of the Antimony. Each rod consists of a group of five Anu, two groups of four Anu and two groups of three Anu.

In the very centre there come the three groups of five Anu, one from each of the rods. These five Anu are themselves at the corners of a tetrahedron (a five-sided figure, not a regular tetrahedron but a pyramid.) These three groups of five Anu arrange themselves in a special formation. One stands at the top and another at the bottom of a vertical line. The third runs round in a ring, like the edge of a disc, which cuts horizontally the vertical line drawn between the other two. The ends of the vertical line move but comparatively slowly, while the middle group of five Anu moves very fast. The whole arrangement then goes head over heels, having a curious double motion.

Round this central group the other bodies, six groups of four Anu and six groups of three Anu, are arranged as follows:

Take a cube and place inside it, at the centre, the set of three fives as already described. Then take the central points of the sides or faces of the cube and at each of these is a body of four Anu. This gives the position of the six fours. Then take a second cube and set it a little cornerwise cutting the first cube; then take the middle points of the faces of this cube. At the middle points are the six bodies of three Anu. It will be seen that these middle points of the faces of a cube are really at the points of an *octahedron*; if we place the groups of one four and one three fairly near together and at the corners of an octahedron we get the idea of the arrangement. The diagram attempts to indicate this. The whole of these threes and fours are said to be in placed in a sphere which forms the grand centre of the Antimony Bromide molecule. This has been indicated in the diagram.

STANNOUS OXIDE SnO

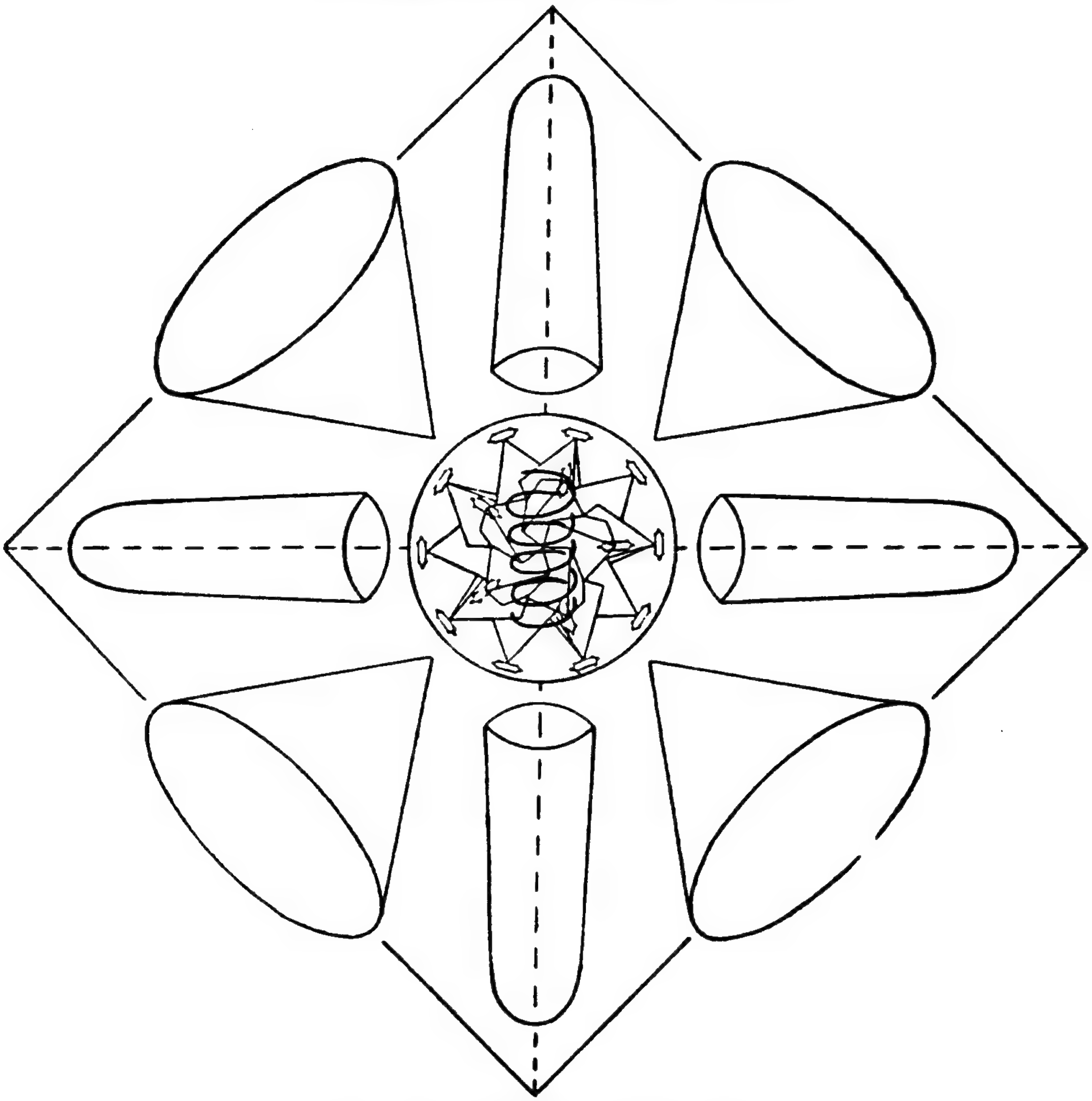


FIG. 179. STANNOUS OXIDE SnO

STANNOUS OXIDE SnO

Tin is a member of the Octahedron Group. It consists of a central globe, Ne120, eight funnels opening on the faces of the octahedron and six spikes pointing to the six corners. Fig. 179.

In Stannous Oxide the Oxygen enters into the middle of the central sphere. This sphere, Ne120, consists of five interlaced tetrahedrons at each corner of which is a group of six Anu. The centre of this tetrahedral arrangement is hollow and the Oxygen gets inside it and stands upright. Before the Oxygen enters the 20 Ad6 groups are held together at a certain distance apart. The Oxygen drives them further apart and the central sphere increases its size without altering its general character. The 20 Ad6 groups, however, which previously lay horizontally at the tetrahedron corners, now stick out vertically, all pointing to the middle.

When the Stannous Oxide is heated Oxygen is expelled and the Tin returns to its normal condition and shrinks again.

In the diagram only four faces of the octahedron are shown. Thus we show four funnels only and four spikes out of the six. Four funnels and two spikes are not shown. Similarly the inner sphere cannot be properly represented and the reader must imagine the 20 Ad6 groups sticking out all pointing to the centre.

STANNIC OXIDE SnO_2

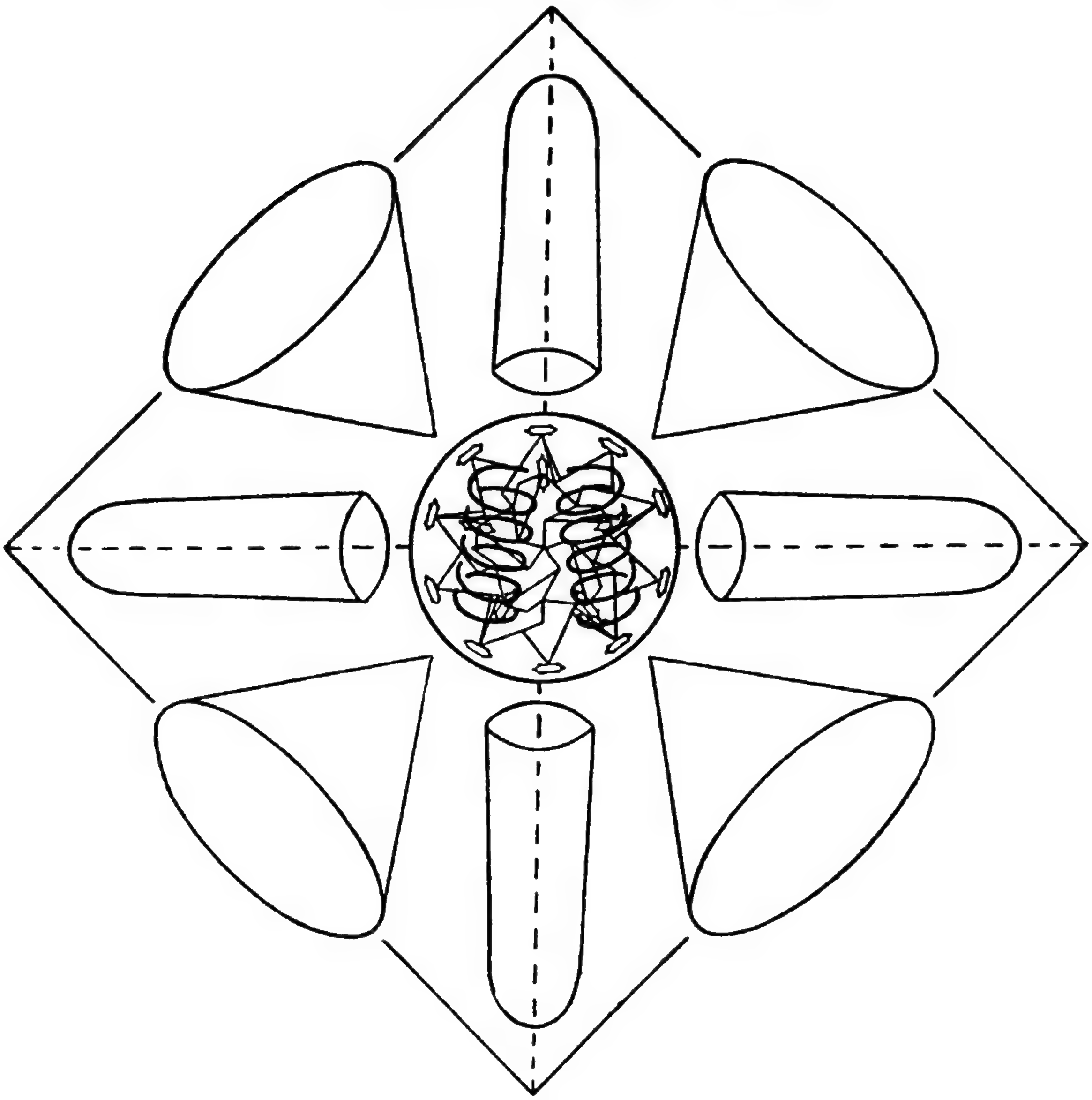


FIG. 180. STANNIC OXIDE SnO_2

STANNIC OXIDE SnO_2

As in Stannous Oxide, SnO, we have an atom of Tin which consists of a central globe, Ne120, eight funnels opening on the faces of an octahedron and six spikes pointing to the corners of the octahedron.

In SnO_2 the two Oxygen atoms enter inside the central globe, which is hollow. They stand nearly upright but inclined slightly to each other. Fig. 180. The 20 Ad6 groups in the Ne120 stand upright, as in SnO, but instead of pointing to the centre those at one side aim at one Oxygen pillar and those of the other side aim at the second pillar.

When the molecule is made to spin very slowly so that it can be observed, the Oxygen atoms are found to spin by themselves. As they spin past, the Ad6 nearest to one Oxygen atom points to it and then to the next Oxygen, thus making the Ad6 move in a waggling, or oscillating back and forth movement, as the two columns come round.

Attempts were made to add more Oxygen atoms. If a third Oxygen atom is added the Ad6 groups loose their cohesion and the whole thing disintegrates.

Four Oxygens will not stick at all. If four Hydroxyl OH groups are tried we get $Sn(OH)_4$ but this is unstable and remains only so long as the will holds them. If the will is released SnO_2 is formed and the remaining Oxygen atoms go off with the Hydrogen forming $2H_2O$.

The diagram of SnO_2 is seen to be the same as that of SnO in essentials. Two Oxygen atoms are shown inside the Ne120 sphere and the whole is a little larger.

Only one side of the octahedron is drawn and therefore four funnels and two spikes are not shown.

PHOSPHORIC ACID H_3PO_4

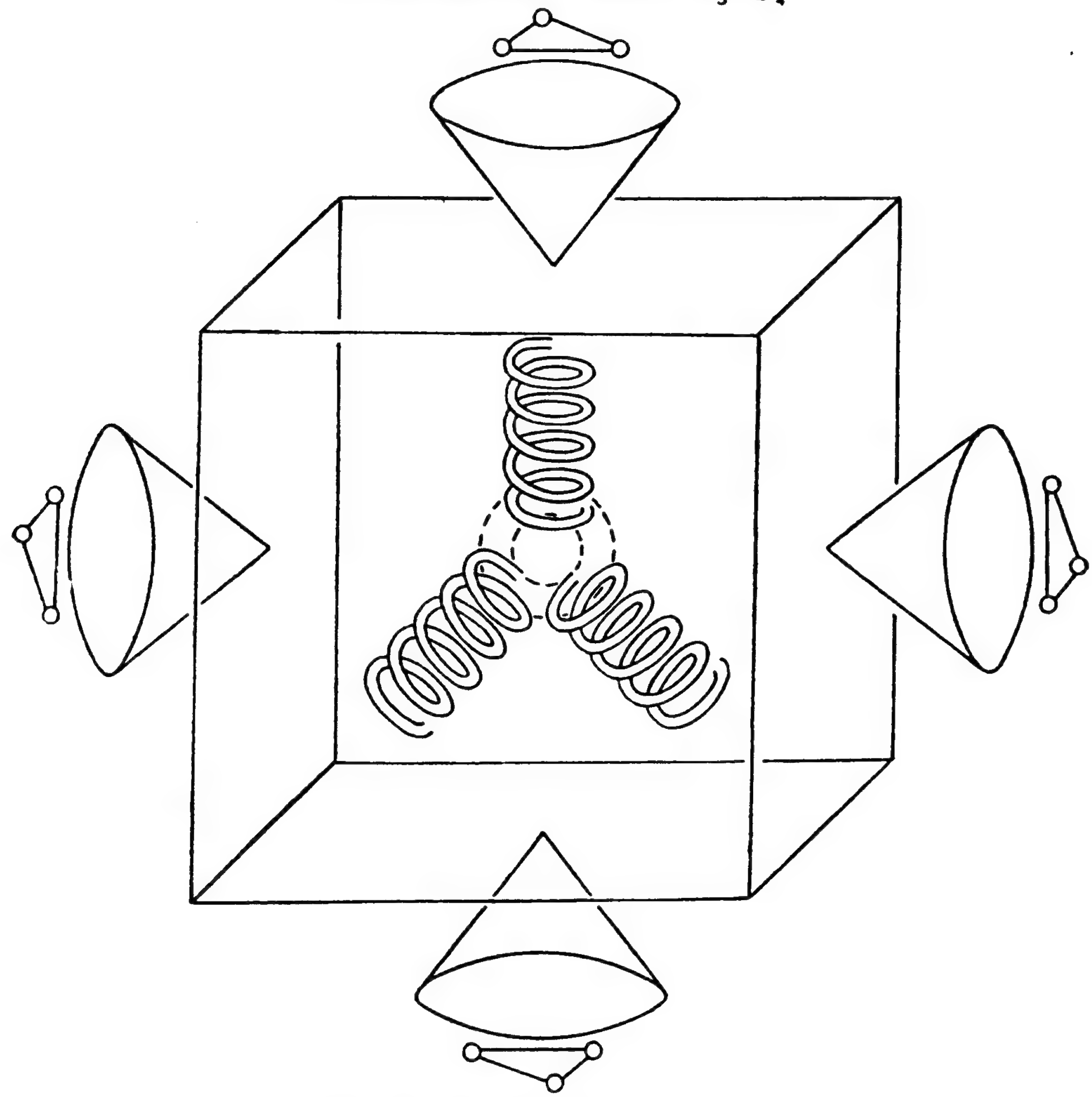


FIG. 181. PHOSPHORIC ACID H_3PO_4

PHOSPHORIC ACID H_3PO_4

The Phosphate Group PO_4 and Phosphite PO_3

The Phosphate group consists of a Phosphorus atom with four Oxygen atoms. Although Phosphorus is a cube it is suggested that the method used in the SO_4 group, see H_2SO_4, is used. Reference to Fig. 174 will show that the four Oxygen atoms are directed towards the faces of a tetrahedron and the four funnels of Sulphur come at the ends of the Oxygen atoms, with the components of Hydrogen floating over the funnels.

In the case of the Phosphate PO_4 group we have again four Oxygen atoms and these enter the molecule and arrange themselves so that they point to the four directions of a tetrahedron, as before. The Oxygen atoms are revolving much more rapidly than the funnels. The Phosphorus is however, a cube. This cube is placed round the Oxygen atom and the six funnels point to the six faces of the cube.

Phosphoric Acid H_3PO_4

In this we have the Phosphate group. The phosphate group does not stand alone. If three Hydrogens are added they break up into their two halves and float over funnels as they do in H_2SO_4. Fig 181.

There are various kinds of Phosphorus acids.

H_3PO_3 seems to be like H_3PO_4 except that as there are only three Oxygen atoms they are in a three dimensional triangle inside the cube instead of towards the faces of a tetrahedron.

It was also observed that there is a second form of Phosphoric acid in which the *funnels* actually break up. Each funnel of Phosphorus contains two constituent bodies, making twelve in all. These arrange themselves in groups of three and float over the four Oxygen atoms. The Hydrogen atoms divide as before more like the H_2SO_4 diagram.

Another Phosphoric acid was observed which has only *two* Hydrogen atoms. In this case the Hydrogen atoms are broken up on to a higher sub-plane, *i.e.* the two Hydrogen atoms give 6 groups of 2 balls, over the six funnels.

AMMONIA NH_3. TYPE A

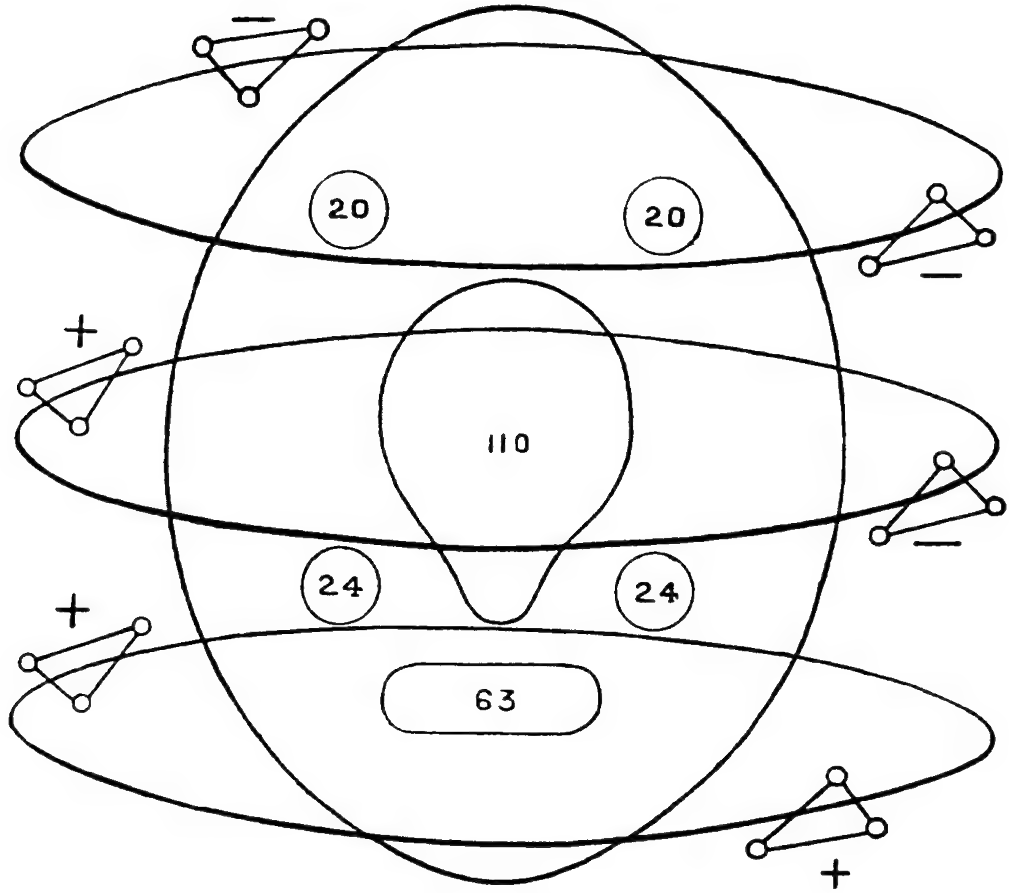


FIG. 182. AMMONIA NH_3 TYPE A

AMMONIA NH_3 TYPE A

The complete Nitrogen atom remains unbroken in the centre of the molecule, while the components of the three Hydrogen atoms circle round like planets round the sun. The Hydrogen atoms break up into the six triangles and these arrange themselves into three groups of two. Instead of the two half-Hydrogens of the atom remaining together as one would expect, however, there is a re-arrangement. The three groups circle on three planes; the first and topmost plane has two negative half-Hydrogens; the middle layer has one positive and one negative; and the bottom layer two positive half-Hydrogens.

AMMONIA NH_3 TYPE B

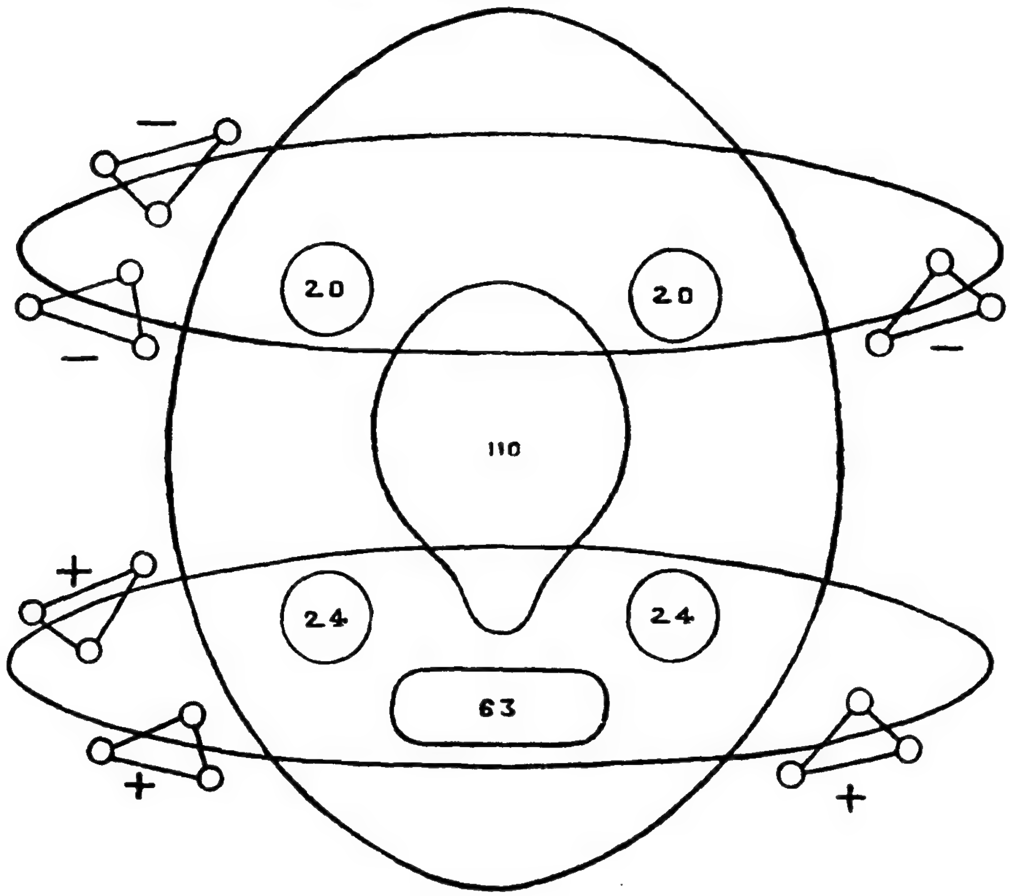


FIG. 183. AMMONIA NH_3 TYPE B

AMMONIA NH_3 Type B

This molecule also has the whole of the Nitrogen atom in the centre but round it revolve, on *two* planes, the six half-Hydrogens. Three negative half-Hydrogen atoms whirl round the upper part of the Nitrogen and three positive half-Hydrogen atoms round the lower half.

AMMONIUM HYDROXIDE NH_4OH

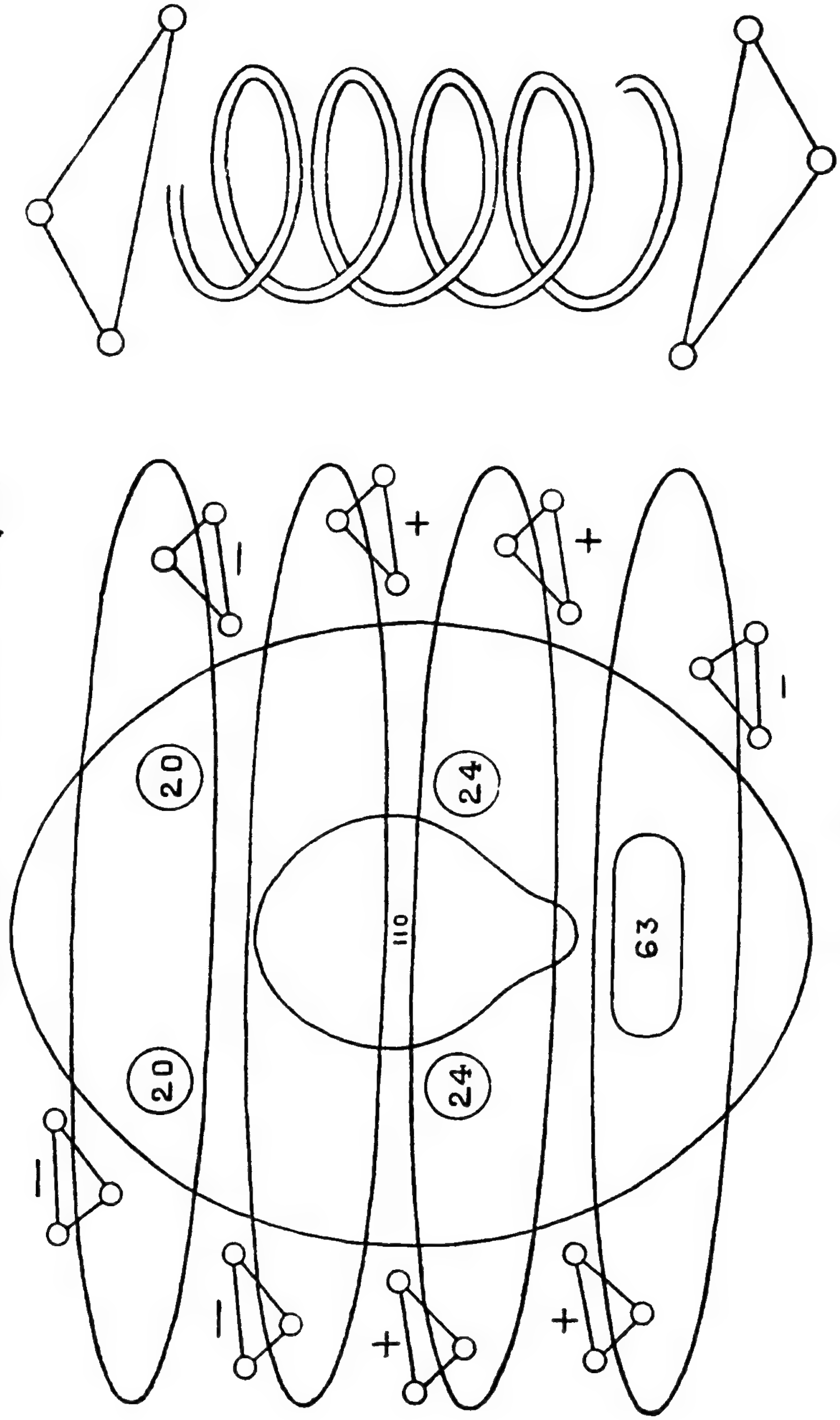


FIG. 184. AMMONIUM HYDROXIDE NH_4OH

AMMONIUM HYDROXIDE NH_4OH

The arrangement of the NH_4 part of the molecule follows the design of Ammonia Type A. In NH_4, however, we have four planes, on each of which circle two half-Hydrogen atoms. The topmost plane has two negative half-Hydrogens, the second, one negative and one positive, the third, two positive and the lowest, one positive and one negative.

The OH group remains together and is placed near the NH_4. Fig. 184.

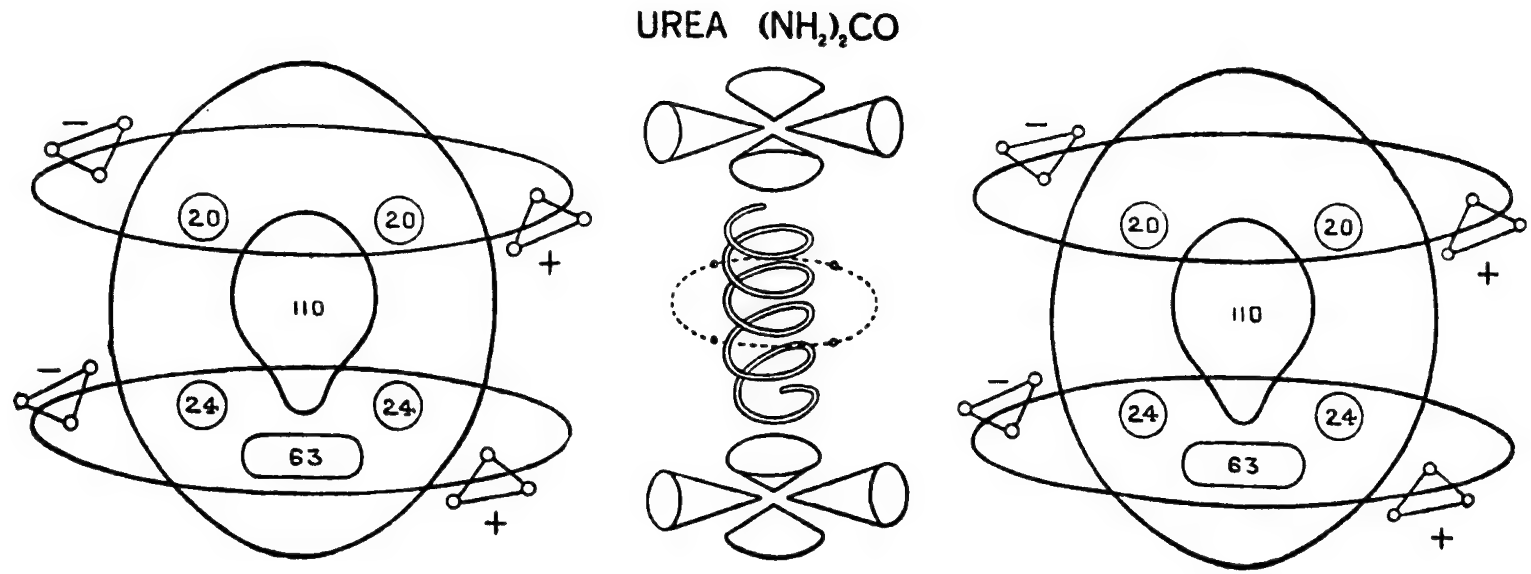


FIG. 185. UREA $(NH_2)_2CO$

UREA $(NH_2)_2CO$

Here again the Nitrogen and Hydrogen atoms remain together, following the general pattern of NH_3 Type A, except that here we have only two planes. Two of these NH_2 groups whirl round one CO group, which is arranged as already met with in other compounds. The Oxygen atom is in the centre forming a column. Round this column circle the four Anu from the Carbon centre and the eight funnels of the Carbon arrange themselves at the top and bottom of the Oxygen column.

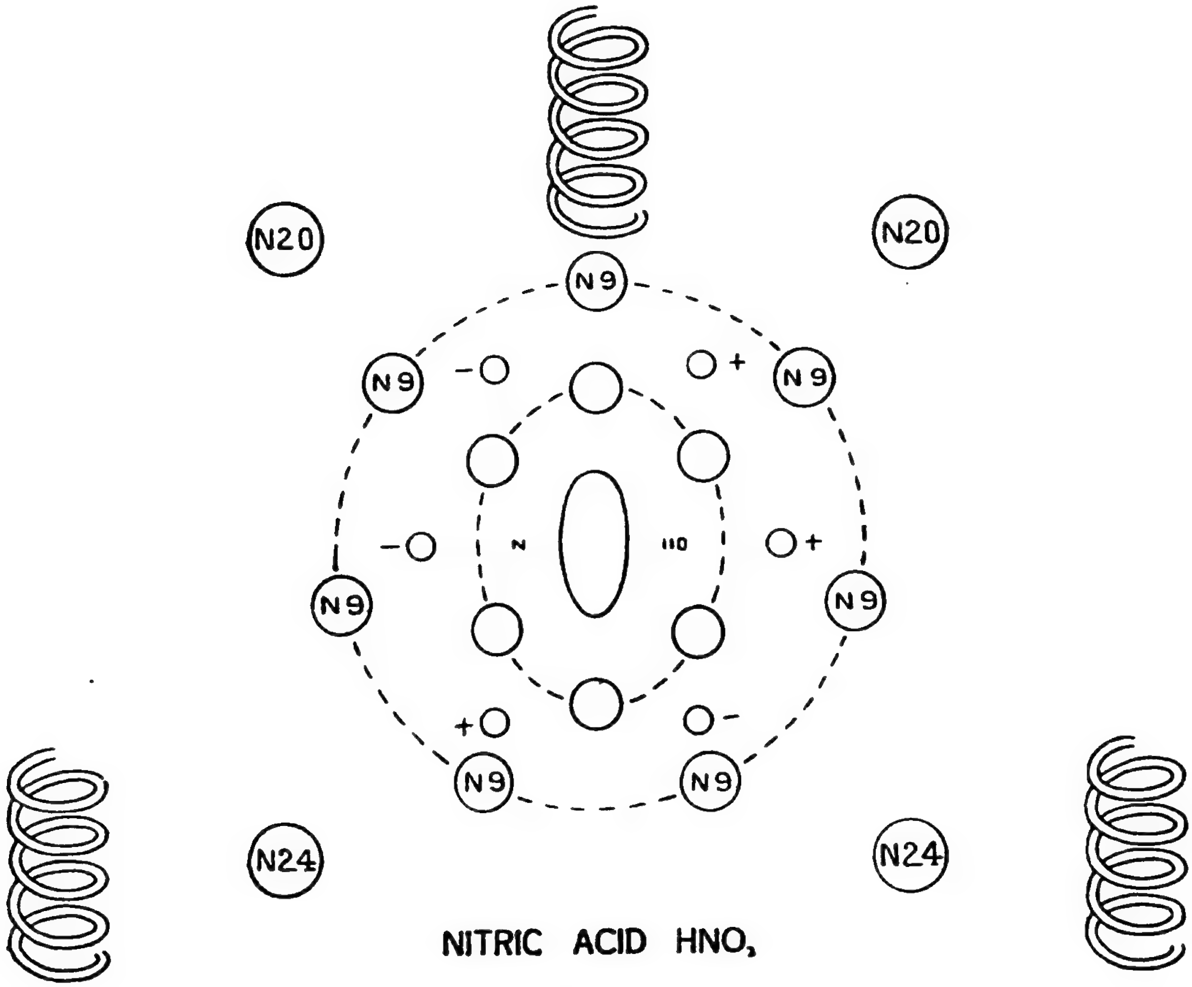


FIG. 186. NITRIC ACID HNO_3

NITRIC ACID HNO_3

In these nitrate compounds it is the Nitrogen which seems to suffer and not the Oxygen. The three Oxygens stand round the remains of the Nitrogen which is broken up considerably.

The centre piece of Nitric acid, HNO_3, is formed by N110. The ovoid at the centre of the N110 is upright and the six globes N14 arrange themselves at the points of a hexagon. Round this centre piece we find the six groups from the Hydrogen atom, also arranged in hexagonal form. They are marked—and+. Round these again come the seven N9 globes which form the N63 group of Nitrogen. These seven N9 globes are at the points of a heptagon. The other four groups from Nitrogen, two N20 and two N24, stand round at the corners like sentinels.

The three Oxygen atoms are at the points of a triangle, probably in the third dimension at right angles to the paper.

SODIUM NITRATE $NaNO_3$

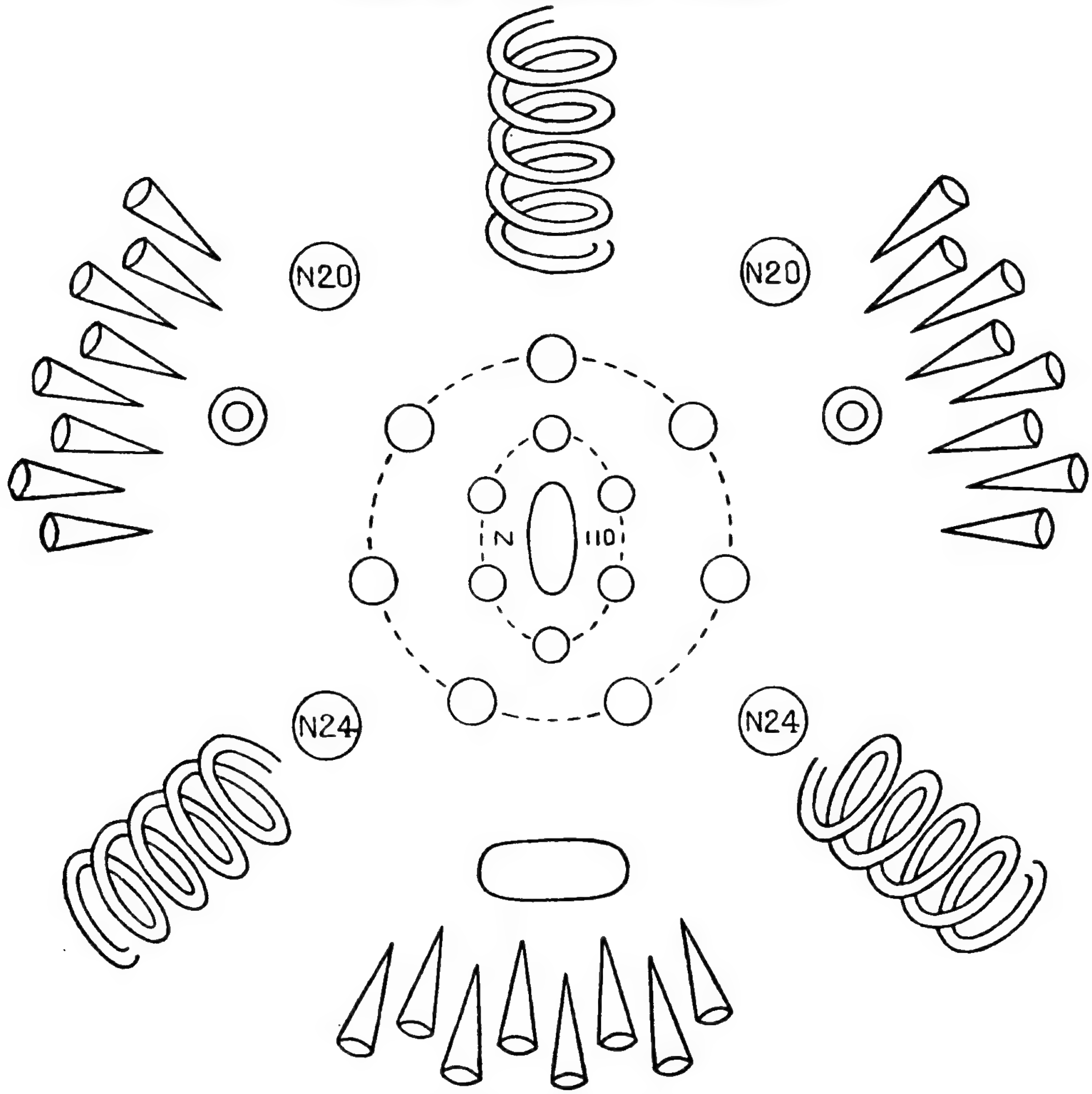


FIG. 187. SODIUM NITRATE $NaNO_3$

SODIUM NITRATE $NaNO_3$

Sodium Nitrate is somewhat similar to HNO_3 and KNO_3. Each has the NO_3 group. In Sodium Nitrate we have the Sodium dumb-bell instead of the Potassium spike. Sodium consists of a central rod, Na14, and two spheres, Na10, from each of which radiates a flower of 12 funnels, making 24 in all.

The Nitrogen atom acts as in the other nitrates, forming a central group with the N110 and N63 round it and the four sentinels, two N20 and two N24, at the corners. The three Oxygen atoms are also placed in Sodium Nitrate as they are in HNO_3 or KNO_3, that is, at the corners of a triangle, probably upright at right angles to the paper with the N110 group in the centre. Fig. 187.

It remains to account for the Sodium atom. It is broken up. The funnels are no longer in the usual groups (flowers) but are in rows like a brush coming down between the Oxygen atoms. There are eight funnels in a line coming out from the centre and sticking out. The Na10 are inside in the space from which the funnels start. The larger ovoid, the Na14, is shown below the N110 group. It will be seen that three groups of eight make up the 24 funnels. Four come from one set of 12 and four from another to make the third set. These are shown at the corners of a triangle between the Oxygen atoms and are drawn as pointing to the centre but making a brush. All revolve in the same direction.

POTASSIUM NITRATE KNO_3.

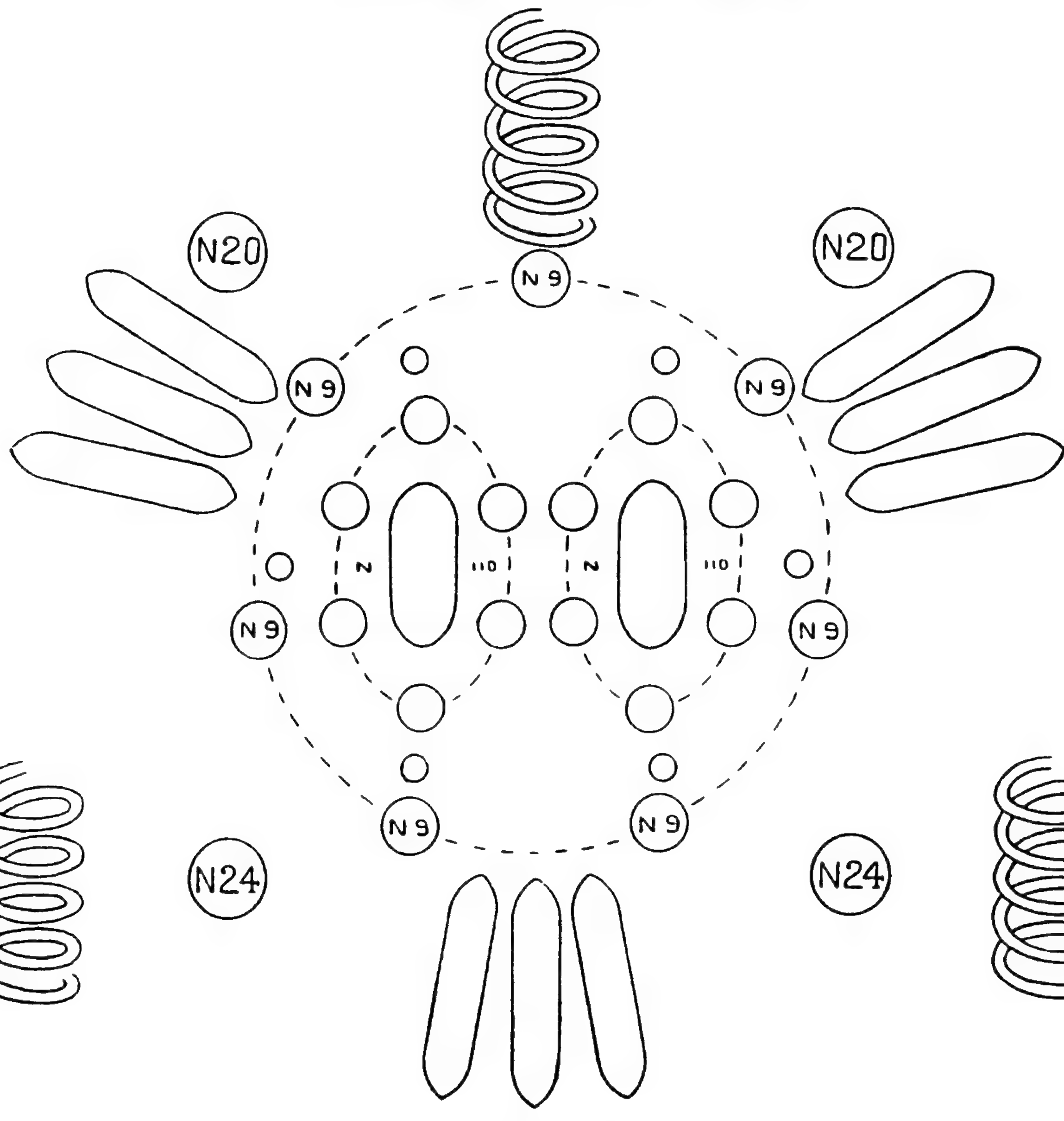


FIG 188. POTASSIUM NITRATE KNO_3

POTASSIUM NITRATE KNO_3

Here we have a Potassium atom instead of Sodium. The Potassium consists of 9Li63 spikes, 6Li4 globes and one N110.

The Potassium atom as well as the Nitrogen is split up. The Oxygen is very active and appears to act as the agent causing this splitting up. Fig. 188.

If we could put a tetrahedron over the head of this molecule, that would partly represent the way the components are arranged, but the two tetrahedrons are not placed one on top of the other but lie between one another. It is difficult to explain the perspective.

First there are two N110 groups revolving round a common centre. Then come the six Li4 at the points of a hexagon and taking the place of the Hydrogen units in HNO_3. Round these again come the seven N9 from the N63. The four globes, two N20 and two N24, appear at the corners as before.

The nine spikes from the Potassium, 9Li63, come between the Oxygen atoms and are indicated as arranged in groups of three. The diagram gives a *suggested* position for them as the original is not clear. These may perhaps be also at the points of a triangle in a plane perpendicular to the paper, making a three-dimensional figure. The Oxygen atoms are placed at the points of a triangle as in HNO_3.

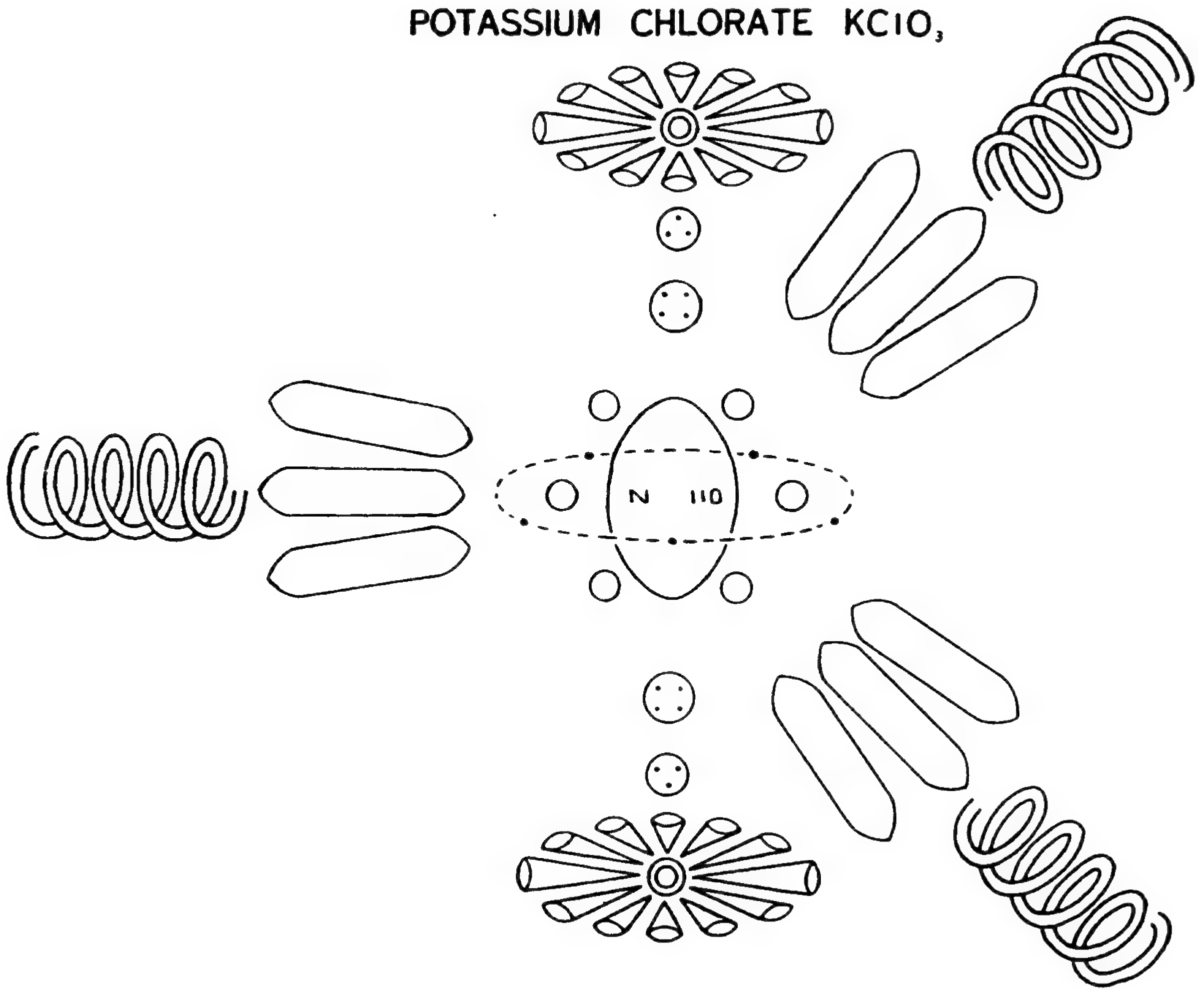


FIG. 189. POTASSIUM CHLORATE KClO$_3$

POTASSIUM CHLORATE. $KClO_3$

The arrangement in this molecule is somewhat like that in Potassium Nitrate.

Potassium is a spike element having a globe consisting of N110 surrounded by six Li4 balls. Above this come nine Li63 spikes.

The Chlorine atom is a dumb-bell, having a rod Cl.19 and two flowers, one at each end, each consisting of twelve funnels and a centre sphere.

The Oxygen atoms have the usual spiral form.

The molecule $KClO_3$ has a dumb-bell in the middle and the three Oxygen atoms round it at the points of an equilateral triangle. These are probably on a plane at right angles to the paper as in Nitric acid and Potassium Nitrate.

The centre of the whole molecule and of the rod of the dumb-bell, is the N110 with six Li4 round it. This comes from the Potassium and seems to push its way into the rod. The middle group of the rod, which is a ball of five Anu, forms a ring round the large group. The rest of the rod, two groups of four Anu and two groups of three Anu, are placed as shown, and complete the enlarged rod of the dumb-bell. The remainder of the Chlorine atom, consisting of the two flowers, appears in the normal position, at the top and bottom of the rod.

The nine spikes from the Potassium atom are at the corners of a triangle and the Oxygen atoms outside these.

POTASSIUM CYANIDE KCN

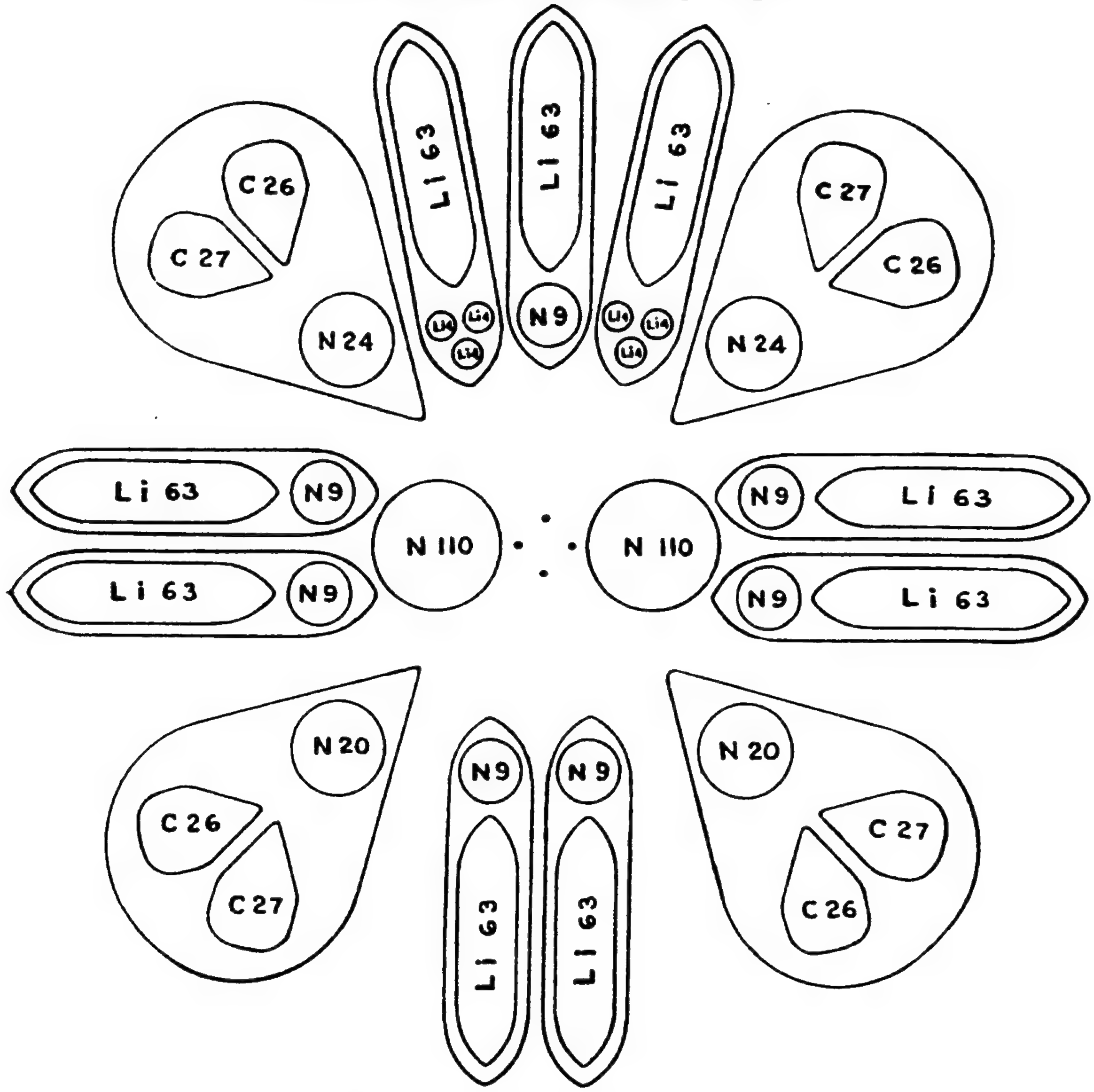


FIG. 190. POTASSIUM CYANIDE

POTASSIUM CYANIDE KCN

This compound was investigated in 1922. The following extract from a letter written by Mr. Leadbeater on September 9th, 1922, illustrates the way in which he approached this work and the patience with which he repeated his observations in order to be quite sure of the facts. The compound KCN is a fairly complex one, and all the component parts of the three elements have to be fitted in.

"I have spent several hours over KCN, and by patiently taking it section by section, disturbing its groupings and then watching them flow back again, I have at last been able to draw some sort of plan of its arrangements. It is very roughly done, I fear, for I have no skill in such matters, and it is of course only a two-dimensional diagram of something which really exists in three or four dimensions, but it may give you some idea of this uncomfortably complex substance.

The molecule is not symmetrical, but it has a strongly-marked tendency to float in a particular position with the group of three bars pointing upwards, so I have marked that 'top'. The actual centre consists of four Carbon Anu, next come two Nitrogen balloons, revolving violently round that centre, and apparently paying no attention whatever to the groups of spikes and funnels which surround them, all of which are moving very much more slowly.

Each of the sub-sections has become to some extent a separate entity, rotating on its own axis at right angles to the general scheme, like a pencil rolled between finger and thumb, but always pointing to the vigorously-active centre. It would seem that each Potassium spike and each pair of Carbon funnels have annexed one of the smaller bodies from Nitrogen, and decline to be separated from it."

It will be seen from the diagram that the grand centre is formed by four Anu. These obviously come from the centre of the Carbon atom, and are the four Carbon Anu referred to by Mr. Leadbeater.

The four sets of funnels from the Carbon atom are situated as shown and each pair adds a group from Nitrogen, either N24 or N20. It may be that these are really placed at the corners of a tetrahedron, so making the three-dimensional form as suggested by Mr. Leadbeater.

The remainder of the Nitrogen atom is split up. The seven N9 groups from the larger group N63, attach themselves to Li63 spikes from the Potassium, while the 'balloon,' now identified as N110, revolves round the grand centre.

The other N110 which revolves round the grand centre comes from the Potassium, as do the nine Li63 spikes and the six little Li4 spheres.

ORGANIC COMPOUNDS

Carbon is an octahedron composed of eight funnels, four of which are positive and four negative Fig. 191 gives two of the funnels, one positive and one negative, spread out flat, with the single loose Anu which binds them.

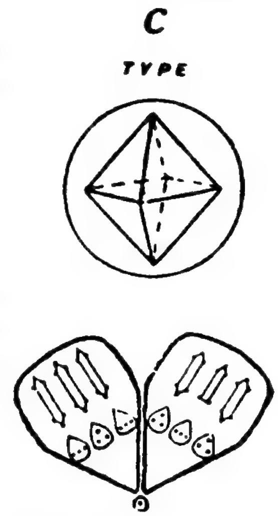
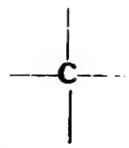


FIG. 191. CARBON

It is interesting to note that chemists have tried to conceive of the quadrivalence of the Carbon atom, represented diagrammatically as



as four valencies radiating from the centre of a tetrahedron to its four corners. No chemist has, so far, conceived of the Carbon atom as consisting of eight half valencies, in the eight directions represented by the eight faces of an octahedron. This, however, is what is seen by clairvoyance.

METHANE CH_4

Methane is the simplest of the Carbon open-chain series, being composed of one Carbon and four Hydrogen atoms.

The combination of four Hydrogen atoms with one Carbon atom is seen in Fig. 192. The four Hydrogen atoms break up into eight triangular groups, four of which are positive and four negative. Each positive group floats at the mouth of a negative Carbon funnel and each negative group at the mouth of a positive funnel.

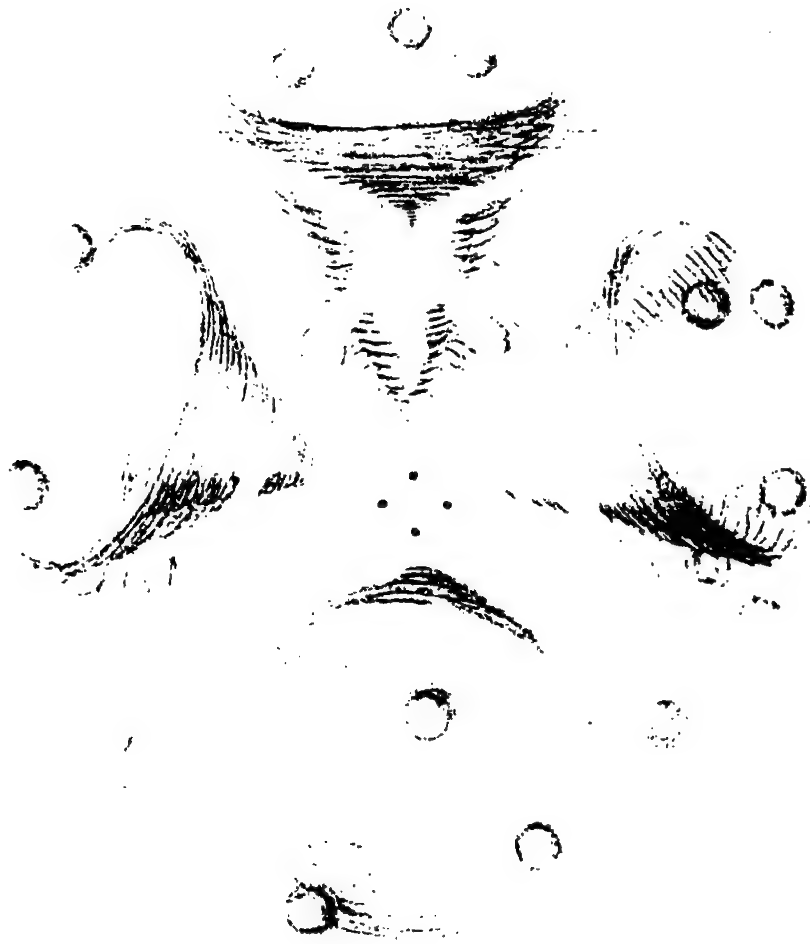


FIG. 192. METHANE CH_4

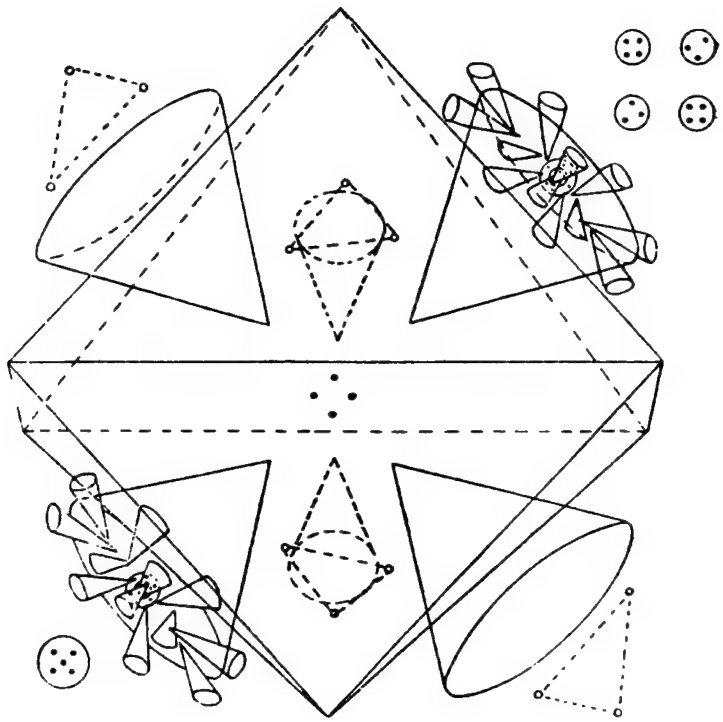


FIG. 193. METHYL CHLORIDE CH_3Cl

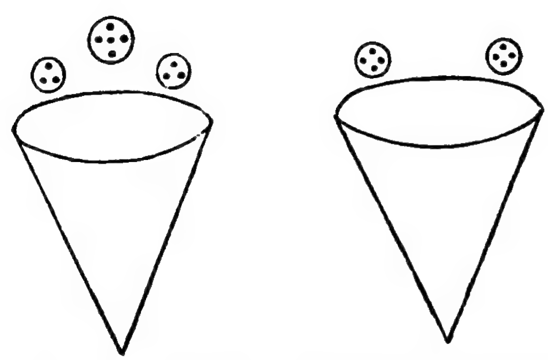


FIG. 194. IN ISOMER OF METHYL CHLORIDE

METHYL CHLORIDE CH_3Cl

The first Carbon compound of the chain series, Methane CH_4, was shown in Fig. 192. Methane is represented as

$$\begin{array}{ccccc} & & H & & \\ & & | & & \\ H & — & C & — & H \\ & & | & & \\ & & H & & \end{array}$$

Methyl Chloride is made by the substitution of a Chlorine atom for one Hydrogen.

$$\begin{array}{ccccc} & & H & & \\ & & | & & \\ H & — & C & — & Cl \\ & & | & & \\ & & H & & \end{array}$$

Chlorine, which is a dumb-bell, undergoes disruption. Its two ends, each of which consists of a central sphere whence radiate twelve funnels, separate from the central rod. This central rod itself breaks up. The result is shown in Fig. 193.

It was mentioned earlier that in the central rod of Sodium there appears a body of six Anu. This body is positive, and appears to act as the centre of the whole atom of Sodium. Similarly in Chlorine, the centre of it all is a body of five Anu in its central rod. This body of five Anu is positive. When Chlorine breaks up, this body of five Anu takes one end of Chlorine with it, and floats over a negative funnel of Carbon. The remaining bodies of the central rod, two of four and two of three Anu, go with the second end of Chlorine and float over a positive funnel of Carbon. Over each of the six remaining funnels of Carbon, there floats a half-Hydrogen triangle, as in Methane.

ISOMER OF METHYL CHLORIDE CH_3Cl

A variant of Methyl Chloride was observed, which is slightly different in the distribution of the five bodies of the central rod. This distribution is as in Fig. 194. Over the mouth of the two Carbon funnels, and under the bodies from the central rod, as in Fig. 193, there float the two ends of Chlorine.

TRICHLOR METHANE $CHCl_3$

When examined clairvoyantly, the appearance of $CHCl_3$ is as in Fig. 195.

In the previous combination, Methyl Chloride, CH_3Cl, the atom of Chlorine was broken up into two parts. Here, however, the three Chlorine atoms are not so broken up, but each attaches itself as a whole to a Carbon funnel. The Chlorine is partly sucked into the funnel. The central rod buckles up and bends in the process. The two flower ends of Chlorine, however, remain outside. One end of the atom of Hydrogen also gets partly sucked into a funnel.

METHYL ALCOHOL CH_3OH

Methyl Alcohol differs from Methane in having one Hydrogen atom replaced by the Hydroxyl group, thus

$$\begin{array}{ccc} & H & \\ & | & \\ H - & C & - OH \\ & | & \\ & H & \end{array}$$

We have seen the appearance of the OH group in Fig. 158. Fig. 196 gives that of CH_3OH. The Oxygen stands upright to two Carbon funnels, and the two Hydrogen triangles at its top and bottom are sucked partly into the funnels.

It was noted in the course of the investigations that Oxygen has a great quality of force, and does not break up when combining so as to accommodate itself to other atoms. In the present figure, the investigator described its behaviour as being " stiff as a poker ".

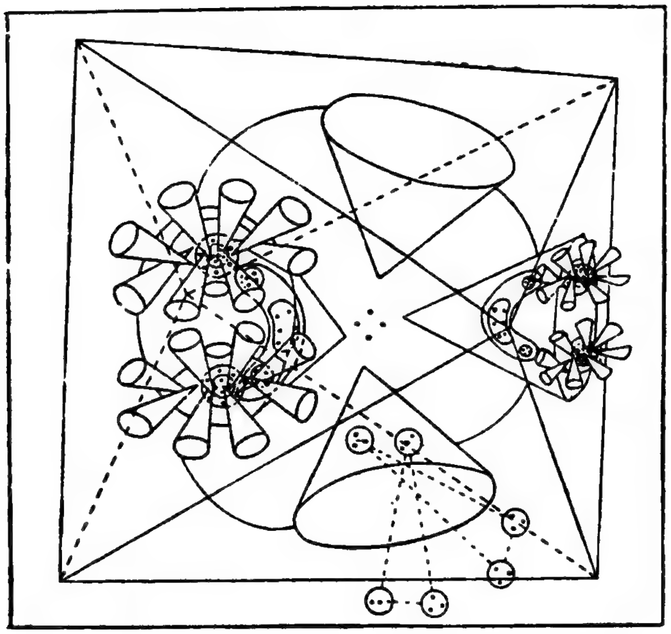


FIG. 195. TRICHLOR METHANE $CHCl_3$

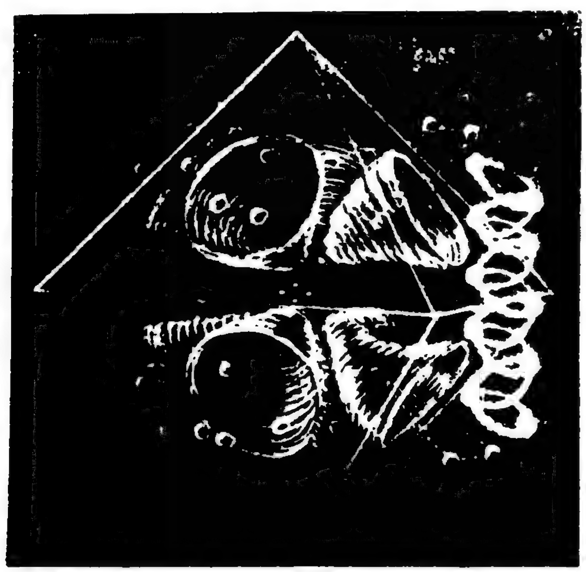


FIG. 196. METHYL ALCOHOL CH_3OH

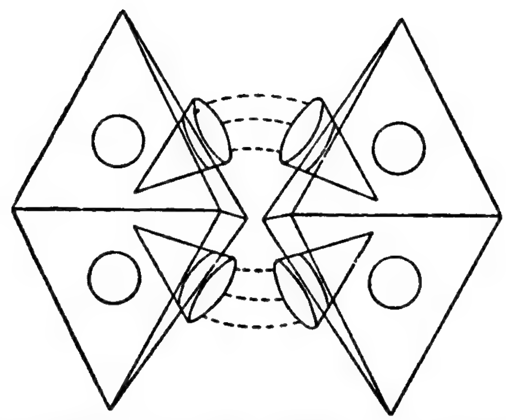


FIG. 197. TWO CARBON ATOMS LINKED TO EACH OTHER

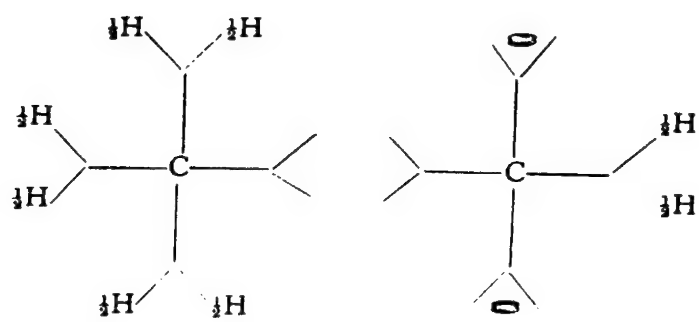


FIG. 198. ACETIC ACID CH_3COOH

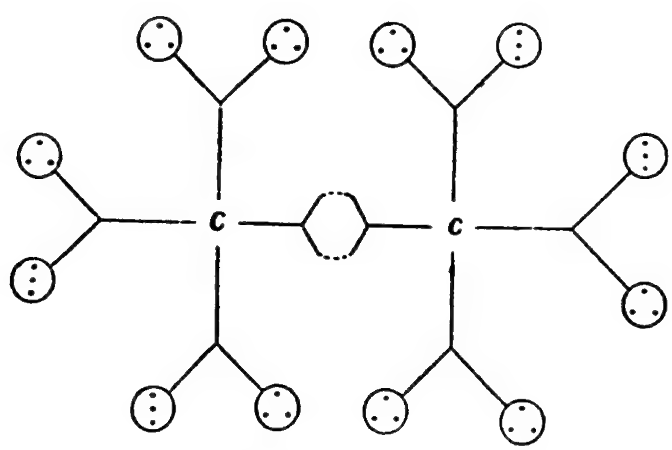


FIG. 199. ACETYLENE C_2H_2

ETHANE C_2H_5OH

In this and the following compounds we have two Carbon atoms linked together in a chain.

Fig. 197 shows how this occurs. A positive funnel of one Carbon atom selects a negative funnel of the other Carbon, for the purpose of linking. The linked funnels cannot of course lie on one plane, and therefore the forces which link are curved.

When, therefore, Ethyl Alcohol

$$\begin{array}{ccccccc} & & H & & H & & \\ & & | & & | & & \\ H & — & C & — & C & — & OH \\ & & | & & | & & \\ & & H & & H & & \end{array}$$

is examined, Figures 196 and 197 enable us to see how it is constructed.

ACETIC ACID CH_3COOH

When it is realized that a valency of Carbon is distributed into two half-valencies, one positive and the other negative, the structure of Acetic Acid becomes simple. Stated in the usual form, but taking each valency of Carbon to consist of two half-valencies, it is as in Fig. 198.

This odd-looking formula is perfectly clear, if one holds in one's hands two octahedrons, placed side by side as in Fig. 197. The first Carbon with its three Hydrogens is similar to Methane, Fig. 192, so far as the three Hydrogens are concerned. In the second Carbon, the position of each Oxygen is as in Methyl Alcohol, Fig. 196, that is, upright and at right angles to two funnels. In the formula, to suggest this, the symbol for Oxygen, O, is placed horizontally. The Hydrogen floats, as two half-Hydrogen triangles, over the two remaining funnels. Though these two half-Hydrogens float over two Carbon funnels, and are so to say satisfied, yet owing to the proximity of an Oxygen atom to each of them, they are pulled towards the Oxygens and so are restless.

ACETYLENE C_2H_2

Acetylene can be produced by dropping water on Calcium Carbide. When this change is looked at clairvoyantly, the Oxygen is seen to fly to the Calcium funnels, releasing the Carbon segments. These Carbon segments arrange themselves in the formation represented by Fig. 199.

The mode of linking C—C is shown in Fig. 197. Four Carbon funnels are thus used up by this linking. The two Hydrogens, broken up into their twelve constituent charge units, each of which contains three Anu, then fly to the remaining twelve funnels of the two Carbon atoms. There is apparently no double bond between the Carbons in Acetylene.

TARTARIC ACID COOH. CHOH. CHOH. COOH

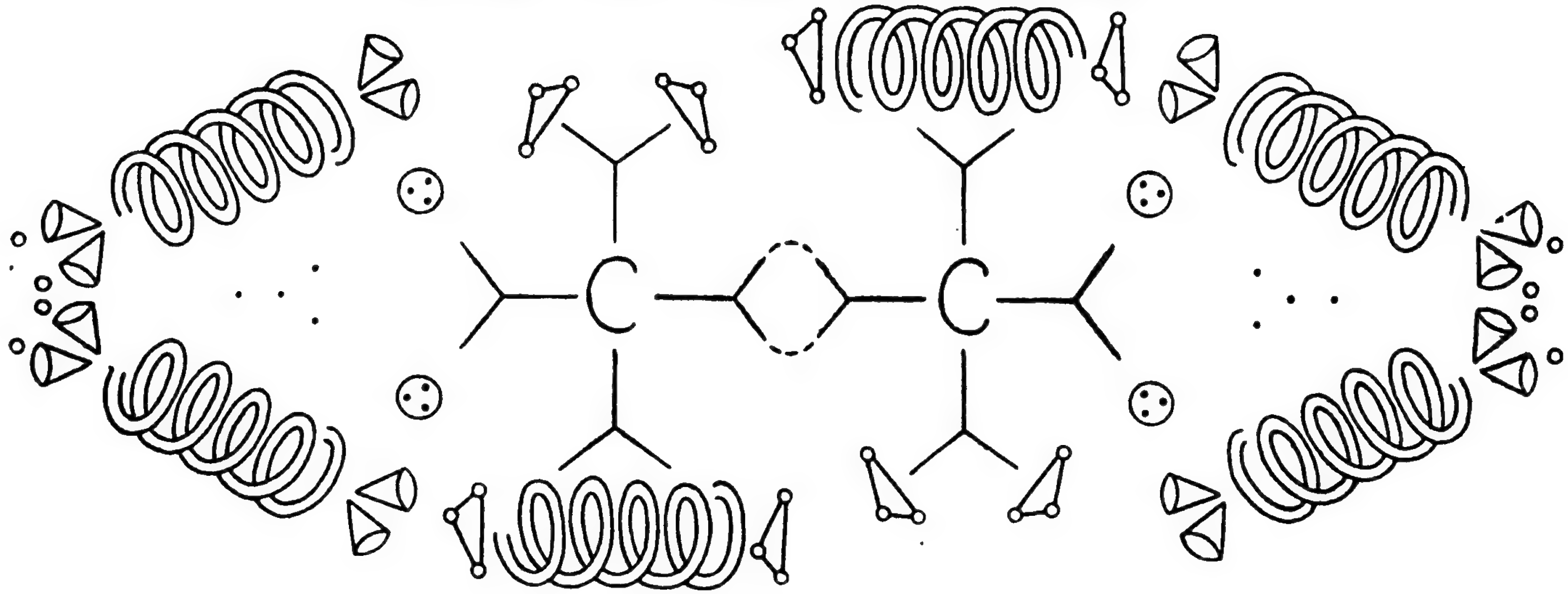


FIG. 200. TARTARIC ACID

TARTARIC ACID COOH. CHOH. CHOH. COOH

In Tartaric acid we have a symmetrical molecule, the two halves being similar. Fig. 200. The two Carbon atoms are joined by using two funnels from each Carbon. The two Hydroxyl (OH) groups place themselves over two funnels as usual, the Oxygen being drawn down into the funnels as in Methyl Alcohol. The well-known Carboxyl group, COOH, is shown here in the form in which it appears in other acids. It will be seen that the four central Anu of the Carbon make a grand centre for the group, and the eight funnels of the Carbon atom place themselves at the ends of the Oxygen atoms. The triplets of the Hydrogen atom come between the two Oxygen atoms and push them apart. These two triplets are over the two funnels of a central Carbon atom. The remaining four triplets of the Hydrogen atom float over the funnels of the Carbon atoms which are attached to the Oxygen, but the description is not clear as to the exact distribution of these four triplets.

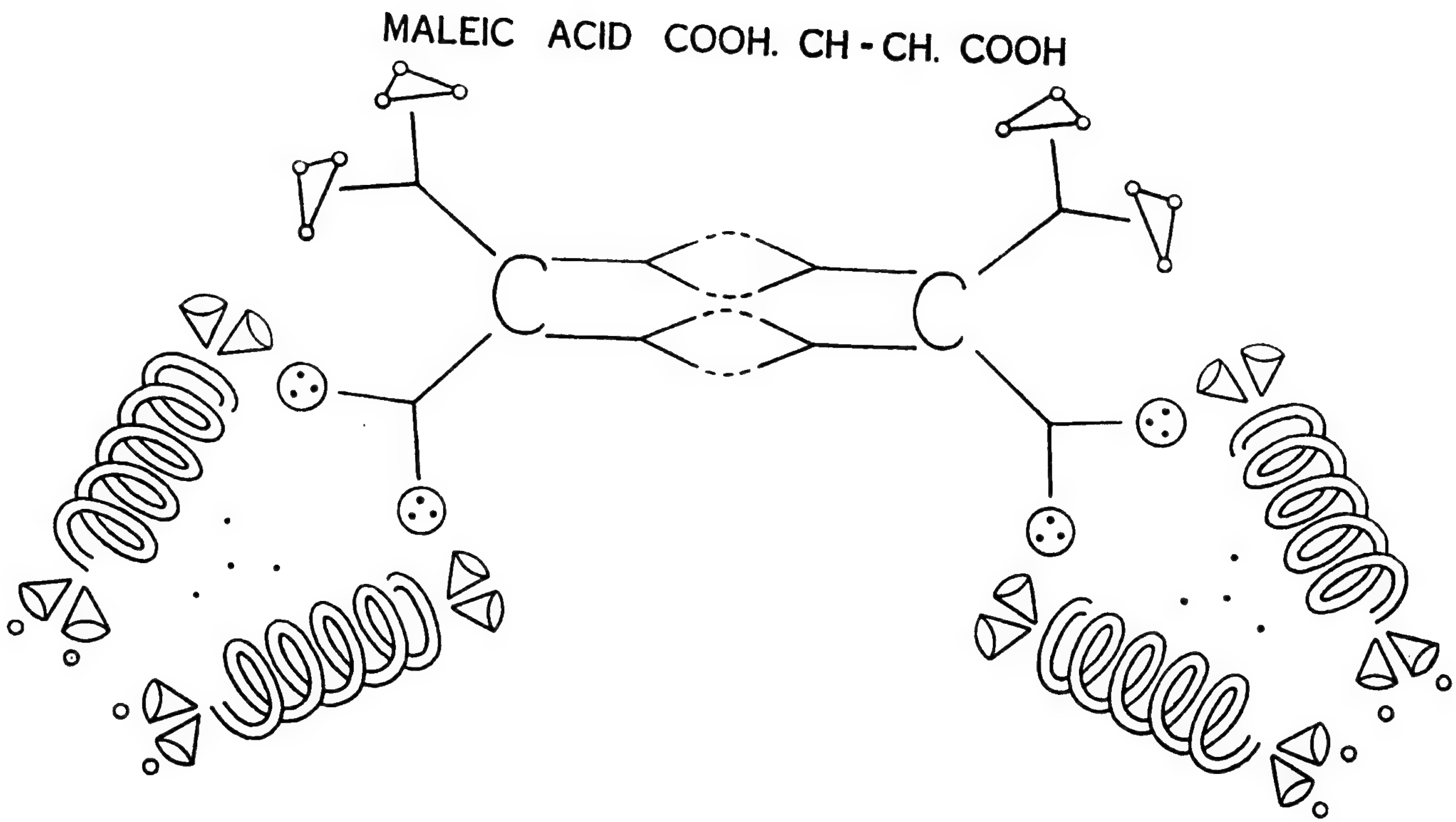


FIG. 201. MALEIC ACID

MALEIC ACID OR $C_2H_2(COOH)_2$

This compound has a double bond in the centre, which means that four of the funnels of each central Carbon are engaged in making this bond. Fig. 201. The octahedrons may be visualized as standing parallel with one complete side used in these bonds. The remaining valencies point to two corners of a tetrahedron. One pair of funnels in each central Carbon is used in holding a Hydrogen atom, this Hydrogen dividing into its two triangles as usual. The other pair of funnels, completing the four valencies, is used to hold a Carboxyl group. This Carboxyl group is arranged just as is the Carboxyl group in Tartaric acid. It is shown making an angle with the Hydrogen to indicate that the whole is in three dimensions and that the valencies point to the corners of a tetrahedron.

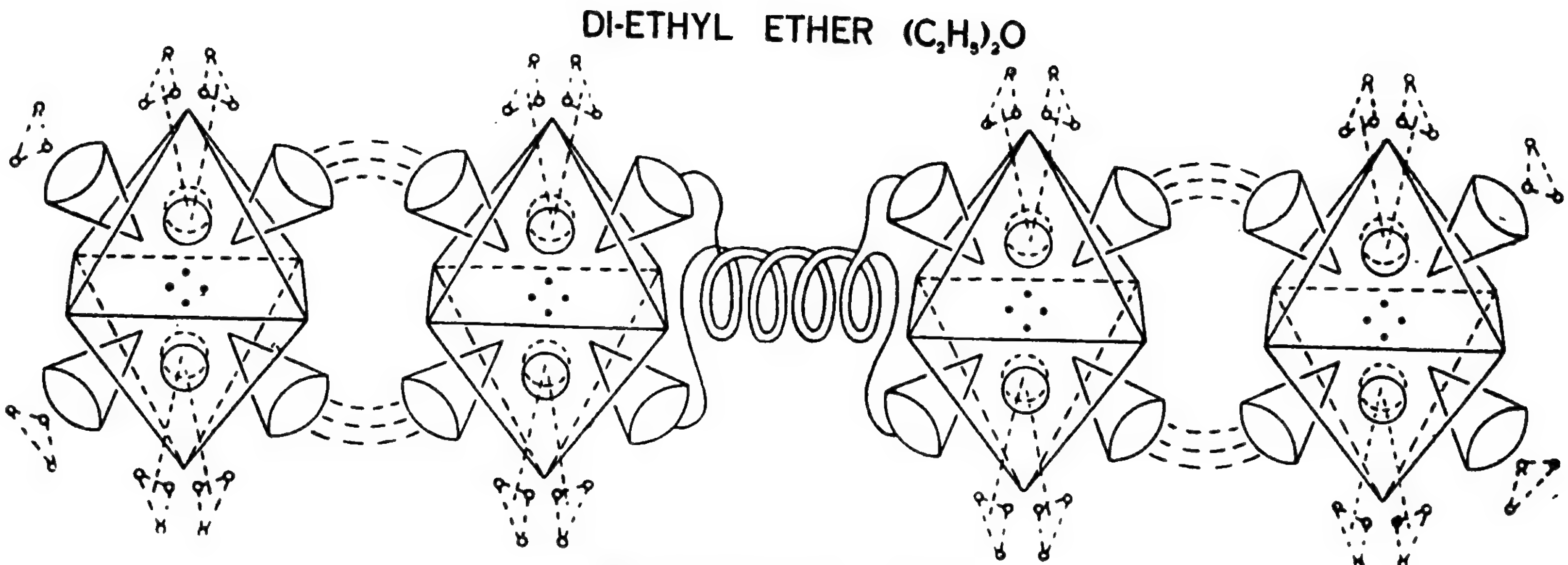


FIG. 202. DI-ETHYL ETHER

DI-ETHYL ETHER $(C_2H_5)_2O$

In the Ethers a group of the ethyl type is attached to another by means of an Oxygen atom. The example given here is Di-ethyl ether, but the other Ethers are on the same plan.

In Fig. 202 the molecule is shown lying on its side like a fallen column, the two groups of C_2H_5 being linked by the Oxygen atom. In the case where two Carbon atoms are joined together four funnels take part, the negative funnel of one Carbon being linked by lines of force to the positive of another.

In the Ethers the tail ends of the double Oxygen snake open out and point to a negative and a positive funnel respectively. The Oxygen atom is thicker and shorter than usual, and the two parts of the molecule hold together because the snakes are pulled in opposite ways because one is negative and the other positive. Four funnels of Carbon are occupied by the Oxygen.

In their natural free state there is a normal position for the atom and its parts. The Carbon atom, for instance, naturally points up and down as in an octahedron. Here the Oxygen pulls the Carbon atoms askew so that they are leaning a little forward. If it were not held strongly the molecule would fall apart.

In the diagram an attempt has been made to show the octahedron as if we were looking direct at one face. Four funnels are shown and the other four indicated.

The Hydrogen atoms break up into half-Hydrogens, as in Methane, and float over the funnels not occupied by the Oxygen, or are used to link the Carbons together.

BENZENE C_6H_6

Benzene is the first member of the closed chain, or ring, series.

It consists of six Carbon and six Hydrogen atoms and can be represented diagrammatically as a single ring. Fig. 203.

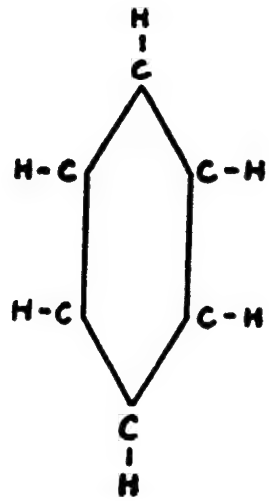


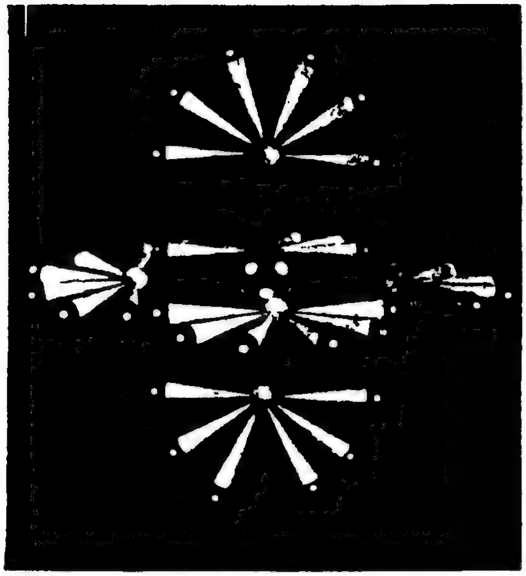
FIG. 203. THE BENZENE RING

Of the four valencies, three are satisfied, what becomes of the fourth valence?

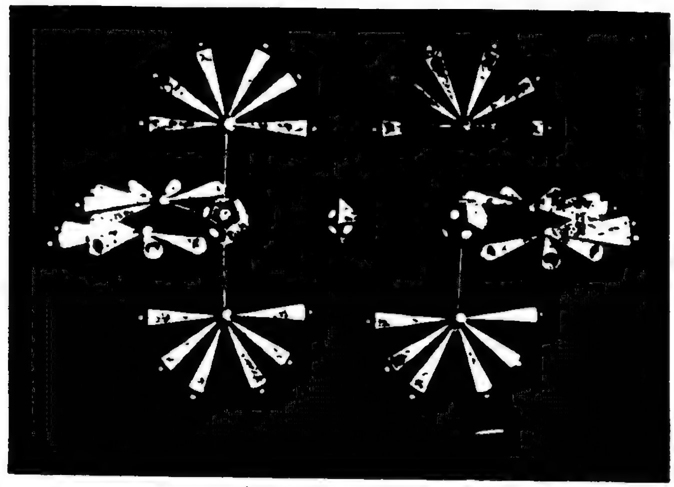
Clairvoyance finds that this valence goes inward.

In Benzene one pair of funnels from each of the six Carbons passes into the ring. These twelve funnels then form a dodecahedron at the centre of the ring. It should be noted that this ring is not a flat hexagon but that the six Carbons are placed at the six corners of an octahedron. The remaining six funnels in each Carbon form themselves into a fan-shape, with the six triplets from each Hydrogen floating over the mouths of the funnels.

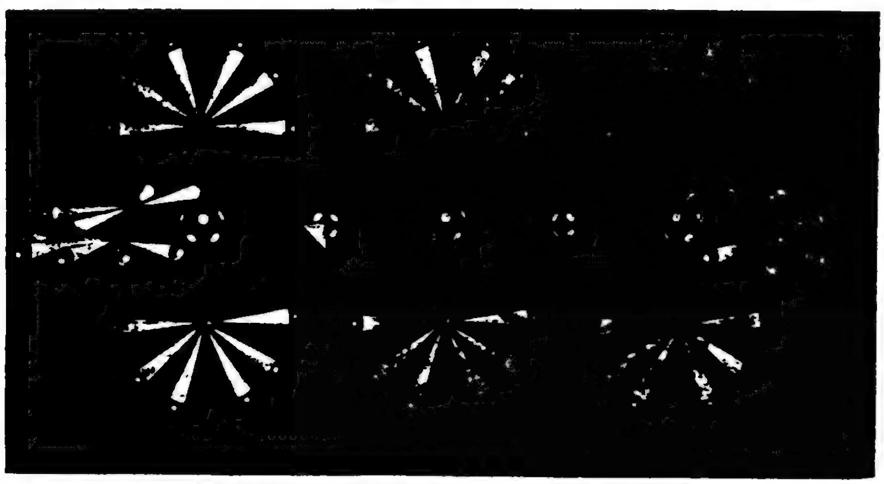
The appearance of the Benzene molecule is shown in Fig. 204, which is a photograph from a model. We must remember that no model can ever adequately represent the reality, since first the distances between Anu and between groups of them, and their relative sizes, cannot be correctly represented in any model, and secondly each funnel which looks solid is not solid at all but is only a whirlpool of force created by the Anu as they revolve.



BENZENE C_6H_6



NAPHTHALENE $C_{10}H_8$



ANTHRACENE $C_{14}H_{10}$

FIG. 204. BENZENE, NAPHTHALENE AND ANTHRACENE SHOWING THE FORMATION OF SINGLE, DOUBLE AND TRIPLE RING COMPOUNDS.

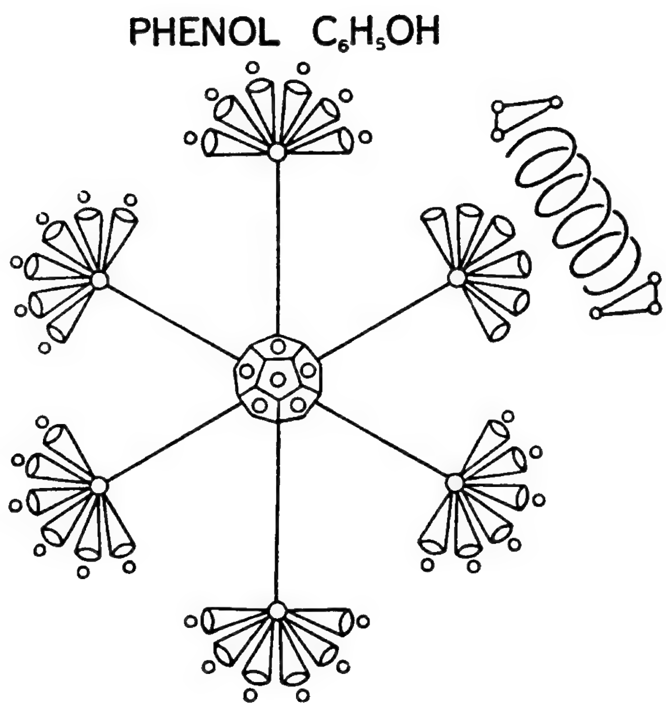


FIG. 205. PHENOL C_6H_5OH

PHENOL $C_6H_5(OH)$

This compound is a simple derivative of Benzene. Fig. 205. The diagram of Benzene should be studied first in perspective, showing the central dodecahedron and the rest of the Carbon atoms distributed at the corners of an octahedron. Fig. 205 shows the six Carbon atoms in Phenol as at the corners of a flat hexagon. This is merely for convenience in the diagrams. The true form is as in Benzene. Phenol is Benzene with the Hydroxyl (OH) group at one corner, and not at the top, as might have been expected. The molecule is not straight but asymmetric. The difference in these things is not in the atoms but in the way in which they lie in reference to the currents. The Phenol is distorted and wobbly. When the Oxygen is lost the Phenol becomes straight again and there is a sense of relief—here there is a distinct rudiment of sensation.

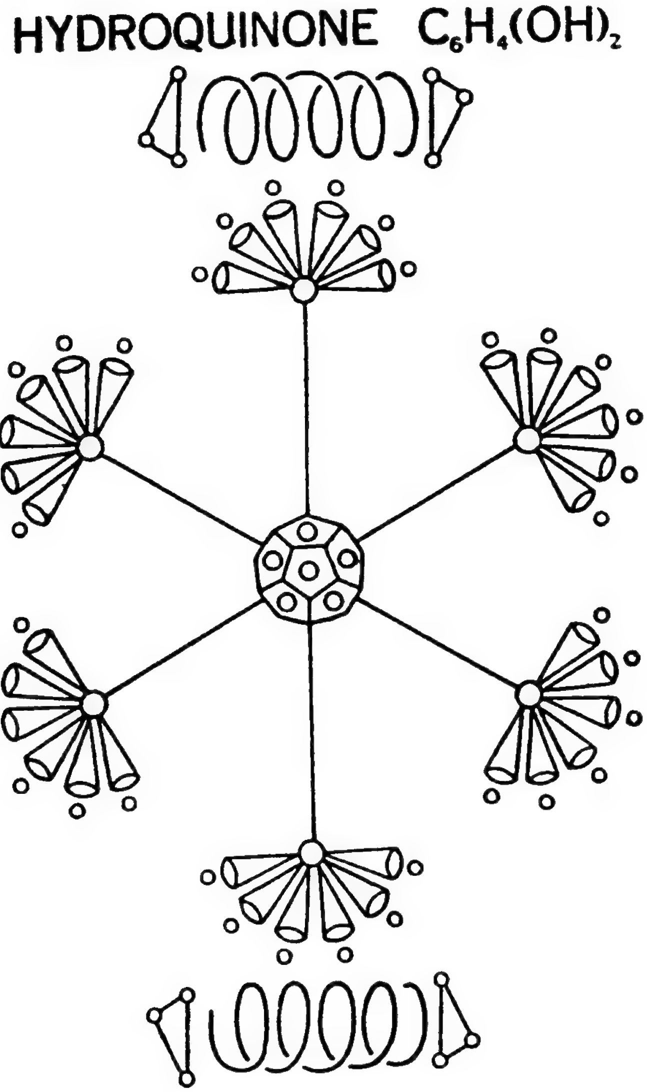


FIG. 206. HYDROQUINONE $C_6H_4(OH)_2$

Here we have two Hydroxyl groups attached to the Benzene ring. They are attached at the top and bottom. The whole is really an octahedron, as in Benzene, but slightly elongated. The two Oxygens seem to elongate the molecule a little but the whole is stable.

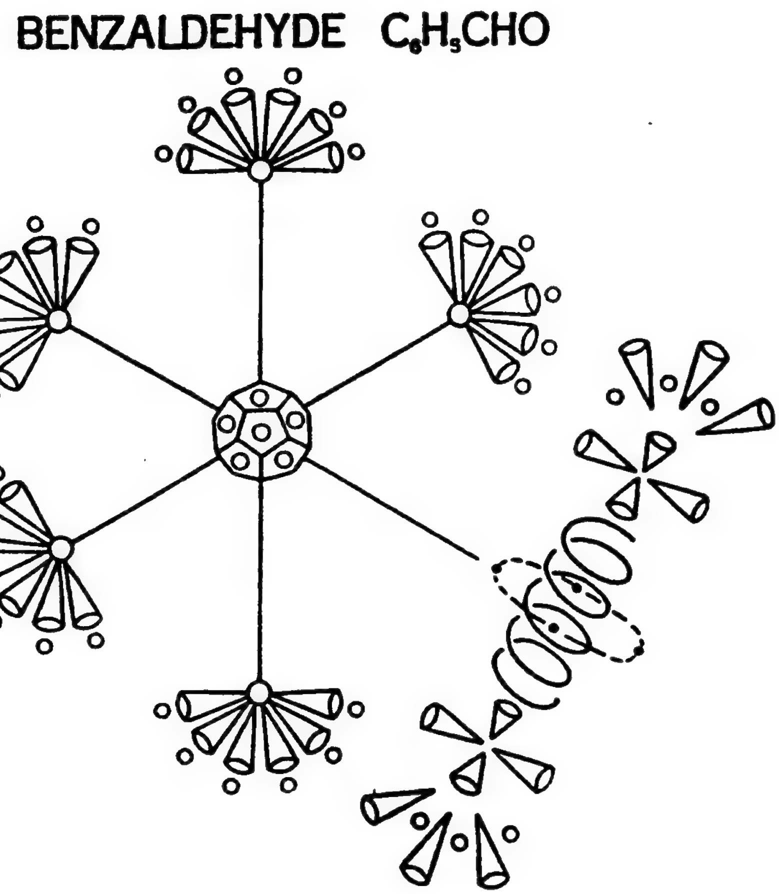


FIG. 207. BENZALDEHYDE C_6H_5CHO

This is a ring compound derived from Benzene. It has an aldehyde group (CHO) attached to one corner. It is described as the usual hexagonal ring with a wart at one corner.

This corner is composed as follows. Usually the *six* funnels of the corner Carbon (two funnels of which are used in the dodecahedron) point outward with the six small H3 groups floating over them. In this case there is no corner Carbon but the six funnels and the Hydrogen atom form part of a complex body. The centre-piece of this body is the Oxygen. The eight funnels from the Carbon of the CHO divide into two groups of four and lie flat at each end of the Oxygen. The *four central Carbon Anu* circle round the Oxygen.

Above the four flat Carbon funnels there are three more Carbon funnels pointing outward. These are from the original six. Three of these six are shown at each end of the wart, sticking out but one at each angle of a triangle. The six balls of H3 do not float over the six funnels as before but are pulled down in some way and are not so definitely attached to their funnels. They are described as restless and dodging in and out. They are shown between these three funnels.

SALICYLIC ACID $C_6H_4COOH.OH$

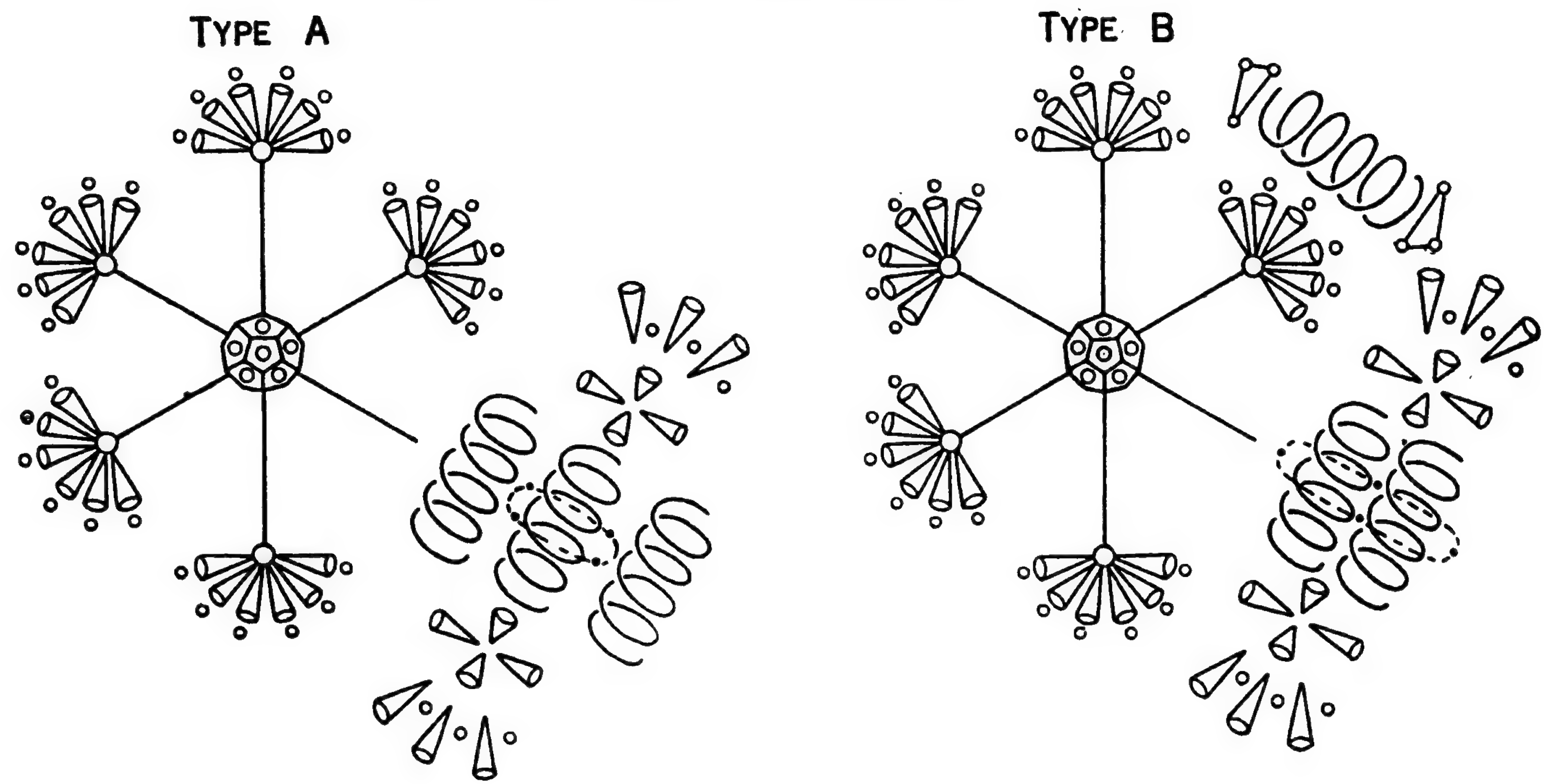


FIG. 208. SALICYLIC ACID

SALICYLIC ACID $C_6H_4COOH.OH$

Two varieties of this compound have been observed. Fig. 208.

In *Type A* the COOH and OH groups coalesce. Salicylic acid is fundamentally a Benzene ring. In *type A* we have an arrangement very much resembling Benzaldehyde. The five Carbon atoms in the ring are as in Benzaldehyde but the 'wart' has become larger as three Oxygen atoms are attached to the sixth Carbon, or rather take the place of the sixth Carbon. The three Oxygen atoms are side by side, with the four Anu from the Carbon circling round the central one. At the ends of the Oxygen atoms appear the four flat funnels from the Carbon atom of the Carboxyl group, while six funnels of the Carbon atoms belonging to the ring radiate out as in Benzaldehyde. In between these funnels, not still, but moving in and out, are the six balls from the Hydrogen of the COOH.

Type B. In this arrangement the OH group remains at one corner as in Phenol, while the COOH group forms a "wart" on the sixth corner as in Type A except that there are only two Oxygen atoms instead of three.

There appeared to be a mixture of these two types within the specimen examined.

PYRIDINE C_5H_5N

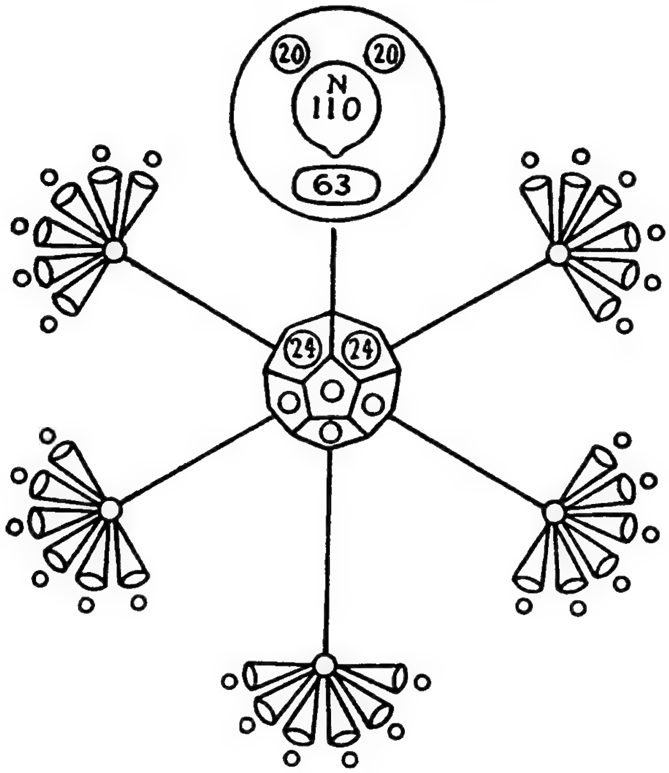


FIG. 209. PYRIDINE C_5H_5N

PYRIDINE C_5H_5N

There are only five Carbon atoms in this compound, so the Nitrogen atom enters the ring and plays the part of the sixth Carbon. As there are only five Carbons, which provide ten funnels and not twelve, the dodecahedron in the centre would be incomplete. However, two groups from the Nitrogen, the two N24 groups, are given away by the Nitrogen and take the places of the two missing funnels. This produces an awkward-looking, asymmetric centre, somewhat dented in. Also there are only five Anu from the five Carbon atoms to provide the grand centre of the dodecahedron. Fig. 209.

The remainder of the Nitrogen atom takes the place of the sixth Carbon atom. The arrangement is stable and the whole is a very sluggish creature. The pear-shaped Nitrogen balloon N110 is in its usual place with the 'dish' N63 below it. It is not possible to say how the valencies work. The two N20 groups remain in their usual places.

NAPHTHALENE $C_{10}H_8$

The chemical formula for Naphthalene is $C_{10}H_8$. Chemists have long postulated that the arrangement of the atoms of Carbon and Hydrogen in it can be represented in a flat space diagram only in some such form as follows:

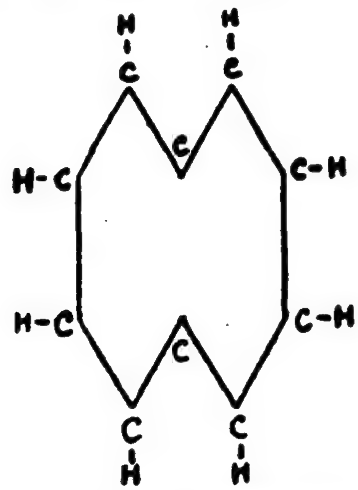


FIG. 210. NAPHTHALENE

When Naphthalene is examined clairvoyantly, its appearance is as in Fig. 204. We find a symmetrically balanced molecule, which has a close resemblance to two molecules of Benzene placed in juxtaposition. Fig. 210. The difference, however, is that out of the six arms of each Benzene, two have disappeared. But in the new combination, the symmetry is brought about by a new object between the two truncated Benzene molecules. This new object is composed of eight funnels of Carbon. These funnels become spheres, and the eight spheres make one whirling group. The arrangement of the spheres show that they are on the eight faces of an octahedron. The student will at once follow the arrangement of Naphthalene, after examining that of Benzene. Fig. 204.

ANTHRACENE $C_{14}H_{10}$

The chemical formula for Anthracene may be represented by Fig. 211.

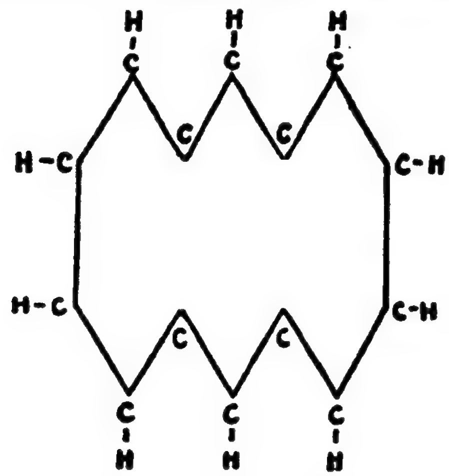


FIG. 211. ANTHRACENE

Anthracene has not yet been examined clairvoyantly but we give a suggested model of it. Fig. 204.

ALPHA AND BETA NAPHTHOL $C_{10}H_7OH$

These compounds are derivatives of the double ring compound, Naphthalene.

In *alpha* and *beta* naphthol we have hydroxyl OH groups attached at one corner of the molecule, the only difference being that in *alpha* naphthol the OH is at the top and in the *beta* compound at one side. Fig. 212.

In the description given by Mr. Leadbeater he says that the six funnels where the Oxygen are attached seem to flatten and make a cushion on which the Oxygen rests as on a brush. The Oxygen seems to be pulled down by the funnels.

In the *alpha* variety the two rings are distorted a little. They are pulled sideways and the second one, that with the Oxygen attached, is a little elongated. In the *beta* form the second ring is pulled still more to the side and bent upward. The whole thing is revolving, but in the *beta* form is more wobbly as if it had a double axis.

These molecules give an uncomfortable feeling of strain. They are not symmetrical and seem unnatural.

Each of the angles of the hexagon ring may have a magnetism of its own and this may account for the OH attaching itself to one corner rather than another.

There is an interesting note here by Mr. Jinarājadāsa, who says that speaking from memory he placed the OH of *beta* naphthol at one corner of the molecule but that Mr. Leadbeater said that it was at another corner. This proved to be in accordance with scientific theory.

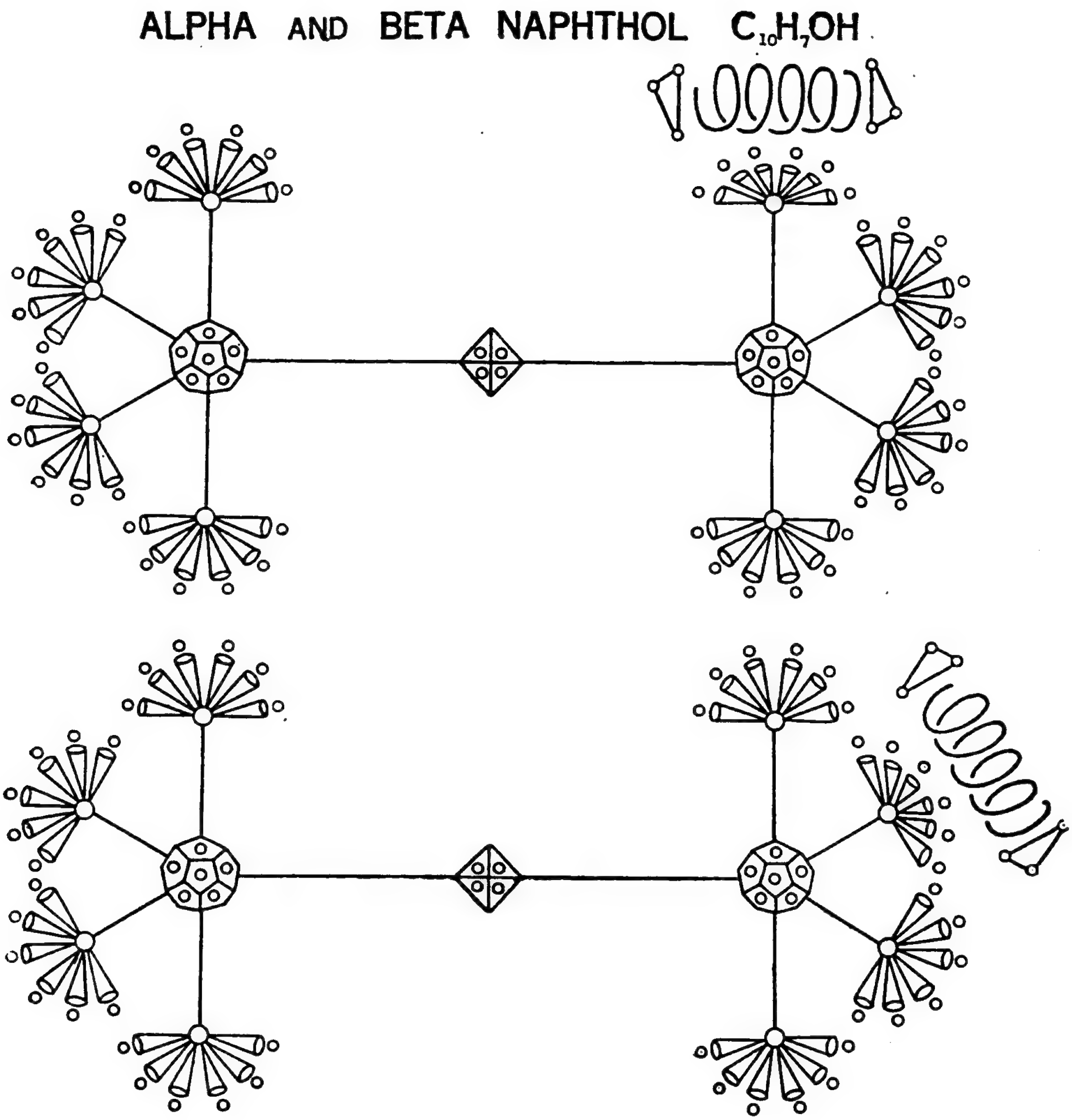


FIG. 212. ALPHA AND BETA NAPHTHOL $C_{10}H_7OH$

INDIGO $C_6H_4NH.CO.C-C.CO.NH.C_6H_4$

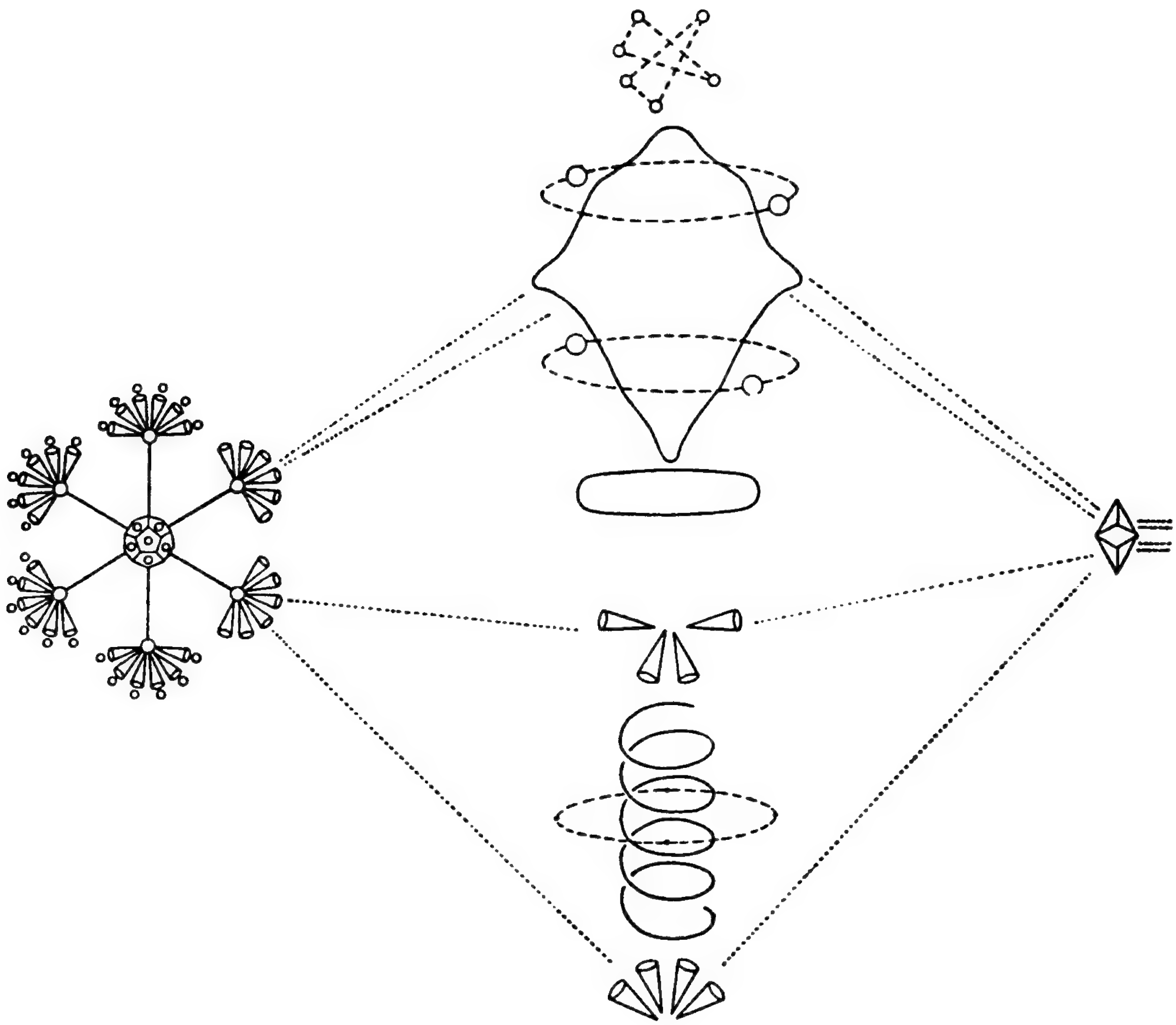


FIG 213. INDIGO

INDIGO $(C_6H_4NH.CO.C)_2$

Indigo is a complex molecule. Fig. 213. It consists of four rings but they are not true Benzene rings. The molecule is double or symmetrical, and each side has a Benzene ring and a second ring attached where Nitrogen, or the NH group, and the CO groups form the connecting links. The two halves of the molecule are connected through a double bond Carbon. Only one half of the molecule is given in Fig. 213.

A particularly interesting point about this diagram is that it illustrates how the valencies of Nitrogen act. The N110 is distorted, having projections at the top and bottom. The two N20 groups circle round the top projection and the two N24 groups circle round the bottom projection, which is pulled down by the N63. The two side projections are directed towards the valency forces from the Carbon atoms. The Hydrogen atom floats above the Nitrogen.

The CO group is arranged as in Carbon Monoxide. The Oxygen is in the centre, as a pillar, and the Carbon funnels flat at the top and the four Carbon Anu circle round it. The Carbon funnels provide the valency forces as usual, but the Carbon in the ring to which the CO is attached has its funnels bunched together like petals closing. The central valence is as in Maleic acid.

CHAPTER XIV

CATALYSIS, CRYSTALLIZATION

JUST a glimpse was gained into the mysterious process of Catalysis. Two examples were observed.

A. THE CATALYTIC ACTION OF MANGANESE DIOXIDE

This was the first observation on catalysis, and Mr. Leadbeater notes the appearance of a totally new force, hitherto not noticed in any previous observation.

The easily performed experiment in catalysis of heating a mixture of Potassium Chlorate and Manganese Dioxide was made. The catalytic changes observed were as follows (representing by O and **O** the Oxygen atoms belonging respectively to Potassium Chlorate and Manganese Dioxide):

1. $K\,ClO_3 + M_n\,\mathbf{O_2} =$
2. $K\,Cl\,\mathbf{O_2}\,O_3 + M_n =$
3. $K\,ClO + M_n\,\mathbf{O_2}\,O_2 =$
4. $K\,ClO + \overset{\uparrow}{O_2} + M_n\,\mathbf{O_2}$

The Oxygen O_2 is liberated, while the catalyst remains unchanged. The action proceeds through the formation of intermediate compounds and is violent.

B. THE COMBINATION OF HYDROGEN AND OXYGEN TO FORM WATER, IN THE PRESENCE OF PLATINUM

In this case there is little chemical evidence of the formation of intermediate compounds. The action is represented $2H_2 + O_2 = 2\,H_2O$.

The Platinum seems to act as an agent to produce the right conditions rather than to take much part in the action itself.

This is borne out in the occult investigation, where the change of the energy conditions is described by Mr. Leadbeater as a *compression*. The substances taking part in the reaction become denser or are compressed together, and in this condition the union of the two gases, Hydrogen and Oxygen, takes place.

It will be seen that in the notes the 'compression' is mentioned, but it is further stated that "The platinum does not do more than draw the Hydrogen atoms round it." To the chemist this suggests the surface film produced on the surface of metals.

The following notes were taken by Mr. Jinarājadāsa during the course of the above observations. They illustrate the method of recording.

C. J. Do the bars of the Platinum revolve more rapidly round each axis?

C. W. L. You make a difference in the density of each *atom*. You can shrink it or loosen it out.

C. J. When they have been squeezed together do they return to the full size?

C. W. L. It is a question of looseness, time after time they return when not under stronger compression. The presence of the Platinum causes a great rise in temperature.

Because of its condition it is capable of action on the surrounding air.

C. J. Is the Platinum saturated? Is the Hydrogen sucked up? Is there a compound of Platinum and Hydrogen?

C. W. L. You may get a state in which the loosened structure of the Platinum draws a kind of court of Hydrogen round it, each bar with ½ H at one end and ½ H at the other end. The atoms are lying separate, no longer interlaced but just like powder.

C. J. Is the individual Platinum atom larger in that case?

C. W. L. In crystals all atoms interact on one another and produce great compression. There is none of that here. Each atom is quite free and not under compression. The bars are looser, the atom has expanded. When the Hydrogen is turned on, gas passed over the Platinum, you get still further expansion. The Platinum does not do anything so long as it is under compression.

C. J. Then you are using something up?

C. W. L. When you apply heat. When the thing is glowing the Platinum is sending out more energy.

C. J. Is it itself moving faster?

C. W. L. Not only do the bars revolve but the atoms inside are also dancing round on solar system scheme.

C. J. Which becomes faster when we heat, or both of them?

C. W. L. Difficult to follow—wont stay still. There appears to be an indefinite amount of latent energy in the thing.

C. J. Has it lost something in the process?

C. W. L. As far as I can see this loosened Platinum is losing its power to respond. Everything is being disturbed. Hydrogen is free again. In the action the Platinum remains more compact than it was it becomes denser and smaller and in the process heat is released.

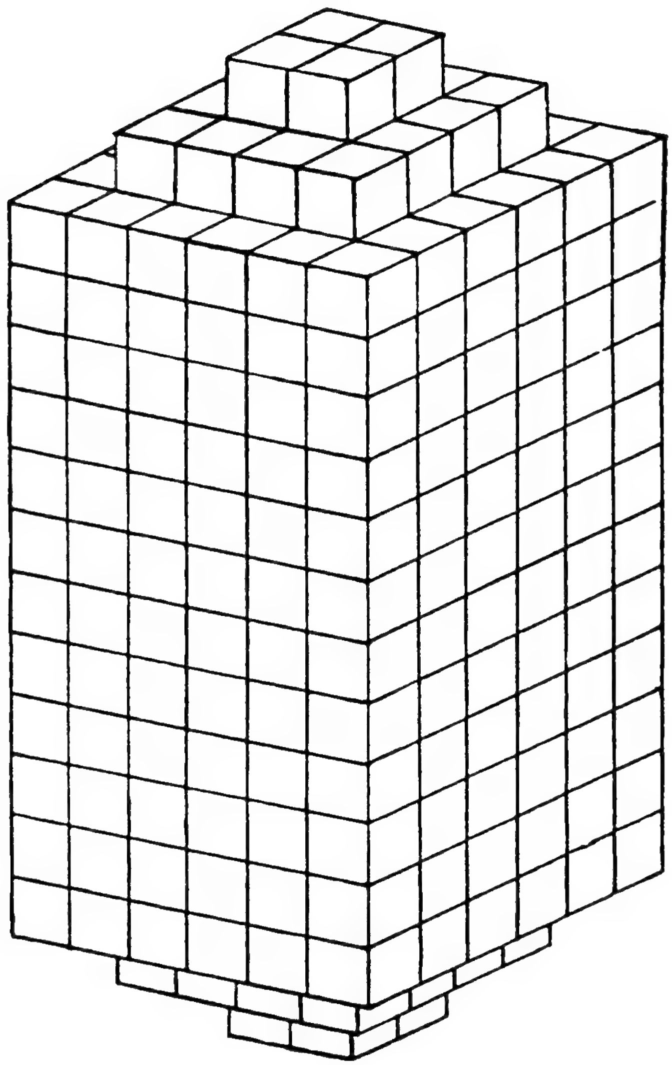


FIG. 214. A SILVER NITRATE CRYSTAL

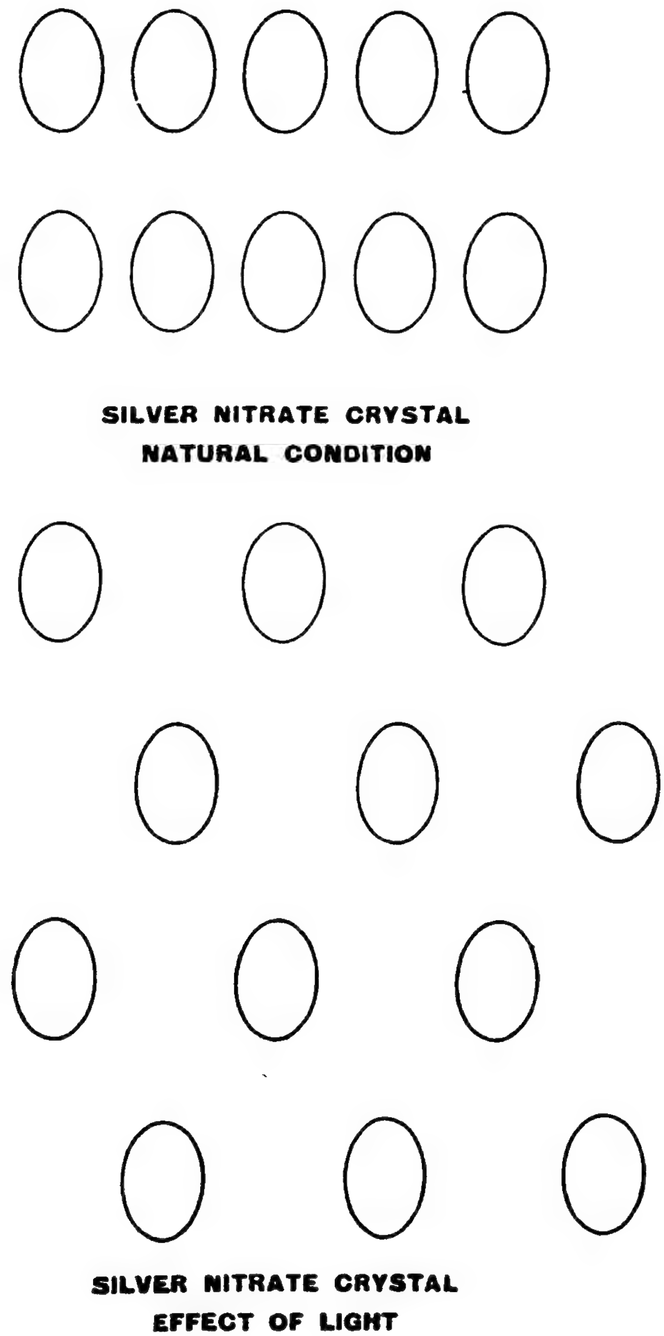


FIG. 215. THE EFFECT OF LIGHT ON SILVER NITRATE

SILVER NITRATE $AgNO_3$

Observation showed that the Silver Nitrate compound existed first in groups of 1,296 molecules, which then broke up into groups of 432 when subject to light.

Fig. 214 shows the crystal of Silver Nitrate, its shape being that of a double cube tapering at both ends. When light impinges on it, it is broken up into three blocks, each of 432 molecules. In these smaller blocks, also the ends are pushed out so that the blocks taper at each end.

Fig. 215 illustrates the effect produced by light on the arrangement of the molecules. In the normal crystal the molecules are in rows. Light alters their position so that they are as in the diagram. The alternate molecules step *back*. Evidently the light is absorbed and not reflected.

CALCITE AND ARAGONITE

The constitution of these two forms of $CaCO_3$ appears identical, but in one the three Oxygen atoms stand upright at right angles to the paper, and in the other they radiate horizontally as drawn in Figure 172, page 276.

THE DIAMOND

When examined clairvoyantly it was seen that the structure of the Diamond was somewhat difficult to grasp. There was clearly a unit of Diamond, and its shape was a triakis octahedron. Fig. 216. But how was the large mass of Carbon atoms built up to make the Diamond? Each Carbon atom is an octahedron in outline; each is composed of eight funnels, four positive and four negative. Obviously in any form of packing, funnels of like electrical quality must not come mouth to mouth, as they will then repel each other.

One especial difficulty in mapping out the structure of the Diamond was due to the fact that in reality there is no rigid octahedral shape visible in the outline of a Carbon atom. Certainly its eight funnels radiate to the eight surfaces of an octahedron; but the octahedral shape is more an appearance than a reality. Fig. 217 shows four of these funnels. The funnel is a temporary effect, being in fact the rotational field made as groups of Anu revolve. In their revolutions, they push back the circumambient matter of the plane next above, making thus a temporary shell or field of activity.

In the packing of Carbon to make the Diamond, any two funnels of opposite electrical quality, from two adjacent Carbon atoms, interlock. The two rotational fields overlap, and the cigar-shaped bodies of one funnel enter among the interstices of the similar bodies in the funnel opposite to it. Fig. 218 is an attempt to show this interlocking. This unusual interlocking may perhaps be the reason why the Diamond crystal is so very hard.

The simplest way to describe the Diamond, whose general appearance is shown by Fig. 219, is to narrate how the octahedrons are assembled, in the making of the model. First, five Carbon atoms are grouped, as in Fig. 220. Funnels of opposite electrical quality hold each other rigidly. These five Carbon atoms, in this formation, form the Carbon molecular unit for the building of the Diamond. Fig. 221 shows the same unit, with its Maltese cross, as seen from the back.

Taking now 25 of these units, we place them in rows of five, making thus a square. Similarly we assemble 16 units to make a smaller square, 9 more to make a square smaller still, and finally 4 to make the smallest square. We now make a pyramid of four sides; its base will be of 25 units, then next above 16, 9 and 4. The top of the pyramid is one unit of five Carbon atoms.

Here we quote the words of the investigator as he describes what he sees.

"Now build in imagination another pyramid exactly like the first, and one would expect, by putting them together base to base, to have the complete molecule. But it is not so simple as that. They are applied base to base, but they are, as it were, bolted together by the insertion of additional Carbon atoms. Turn the pyramid upside down, and you will see quite a pretty pattern of 25 Maltese crosses. Fig. 222. Take any four of these crosses, and you will see in the middle of the group of four a depression, a square hole. In the reversed base of 25 units there are 16 of these holes, and before we set the bases together we must put a single carbon atom in each of the 16 holes of *one* of the bases. The 16 atoms will project like spikes, but when we apply the two bases, we shall find that these projections will exactly fit into the depressions which come opposite to them, and will lock the two pyramids together most efficiently. Is this also part of the explanation of the extreme hardness of the diamond?

"There is yet another peculiarity. The 16 blue and black holes (in the diagram) are arranged in four lines of four. Produce those lines in each case to the edge of the base of the reversed pyramid, and we find another additional Carbon atom fixed there as a bolt; *also*, one extra at each corner of the base. We will mark the holes for these (they are really only *half*-holes) green in our diagram, and there will be twenty of them altogether. The Carbon atoms which fill these green exterior holes project at the sides of

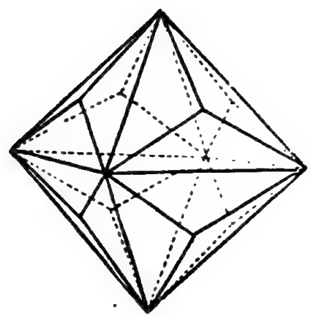


FIG. 216. A UNIT OF DIAMOND

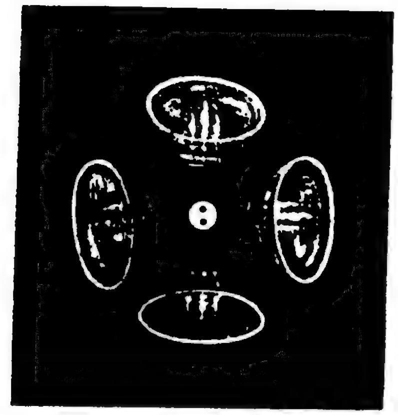


FIG. 217. FOUR CARBON FUNNELS

FIG 218. CARBON INTERLOCKING

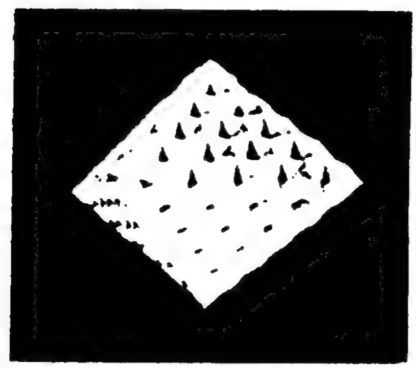


FIG. 219. A CRYSTAL OF DIAMOND

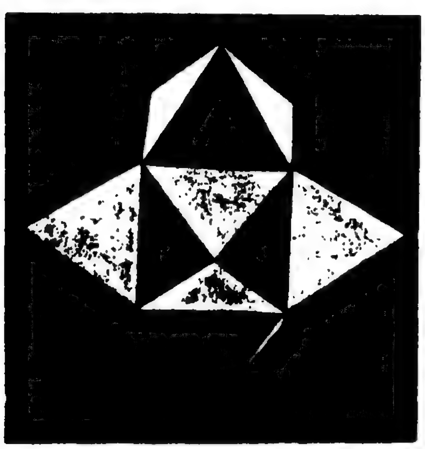


FIG. 220. FIVE CARBON ATOMS

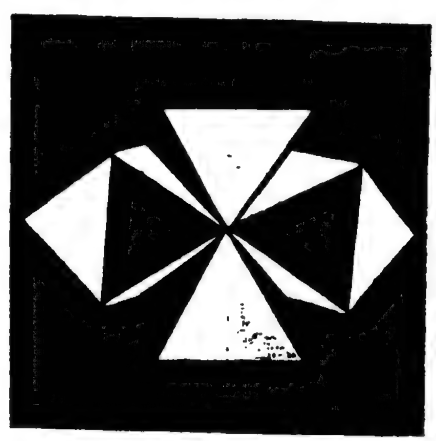


FIG. 221. VIEW SHOWING MALTESE CROSS

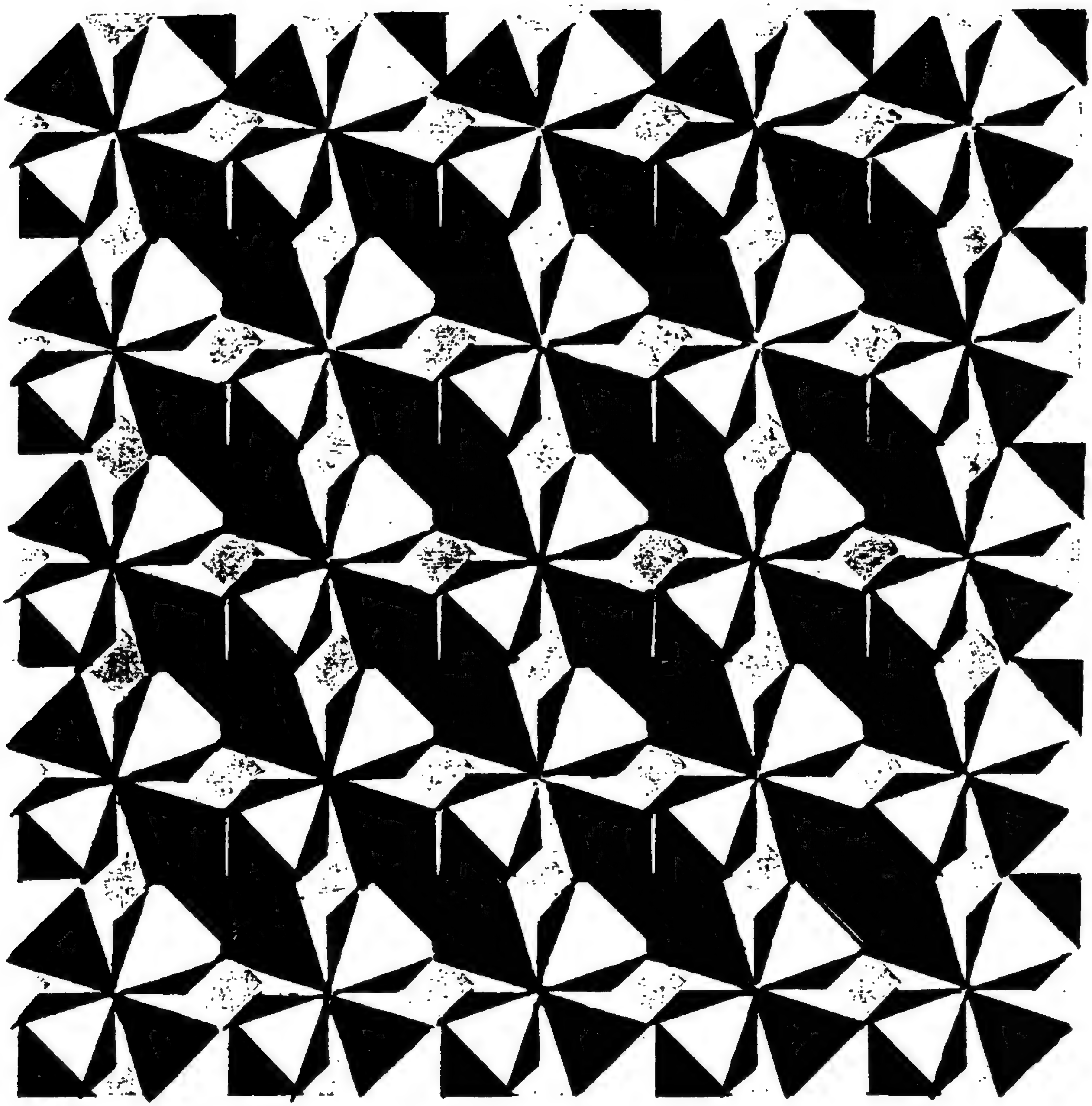


Fig. 222. The Structure of the Diamond

the base of the pyramid, and make a serrated edge. Has this anything to do with the remarkable cutting power of the diamond?

"It seems noteworthy that the molecule stands always on the point of one of its pyramids, like a buoy floating in the water. In building the two pyramids, the units (of five Carbon atoms) always stand upright on their crosses; consequently it follows that when we reverse one of those pyramids to apply their bases, all the units in both of them are pointing away from the centre of the molecule. The little grey lozenges on the diagram are orifices, through which the background can be seen.

"I find it extraordinarily difficult to describe the thing so that there can be no mistake about it; I feel as though there must be some other way of looking at it which would make it all perfectly simple, but I cannot just get that point of view; perhaps some-one else will. You have probably no idea of the trouble it has cost to analyze this molecule; it seems different from anything I have tackled before.

"There is still one more peculiarity, which however is not represented in the model. The whole molecule is, as I have said, a flattened octahedron, and of course its eight sides are triangles. But in the middle of each of these eight sides—or rather *over* the middle of it—hovers a single floating Carbon atom, floating out at right angles to the face of the triangle, pointing straight away from its centre. Its bottom point is *almost* touching the central point of the side, but not quite. I suppose that we could make it appear to float in its place by some ingenious attachment of thin wire, or possibly a long pin. Tiny as this Carbon atom is, it produces a curious effect. We know how each chemical atom makes a shape for itself by pushing back surrounding matter—a shape which is really illusory, like the octahedron for the Carbon atom, whose sides are actually the mouths of funnels. Without those eight floaters, the shape of this Diamond molecule would be a flattened octahedron; but each of them raises the centre of its triangle very slightly, so that lines run from that centre to each angle of the triangle, dividing it into three very flat triangles, and so making the molecule a twenty-four sided figure, the triakis octahedron. The lines, of course, run from the apex of the floating atom."

When we count the number of Carbon atoms in the unit of Diamond, we find:

In each pyramid 55 units of five = 275

Therefore in two pyramids	....	....	550	Atoms
In 16 blue holes	....	....	16	"
In 20 green half-holes	....	....	20	"
Floating atoms	....	....	8	"
	Total	....	594	Atoms

GRAPHITE

It is well known that Graphite, which is dark grey and lustrous, is also composed of Carbon atoms. While the Diamond is hard, Graphite is soft and friable. Obviously the packing in Graphite must be quite different. Each octahedron in the figure is a Carbon atom of eight funnels; the difference in the electrical quality of the funnels is shown by light faces of the octahedron for positive, and dark faces for negative funnels.

The arrangement of the octahedrons in Graphite is such that, in each ring of six, a positive funnel is linked to a negative, and vice versa. Two layers of Carbon atoms in this formation can exist linked one over another, as the under surface of each layer is exactly the reverse electrically of the upper surface, and so two contacting surfaces readily link.

This open-work lace-pattern arrangement of Carbon atoms accounts for the peculiarities in Graphite of darkness and of lustre. When light falls from the top, most of it enters in, and therefore when looked at from that particular angle, Graphite is dark. When light falls from the side, the absorbing spaces are much smaller in comparison, and a great deal of the light is thrown back, but not all of it, as in the case of the Diamond. The friability of Graphite is easily understood when we note its arrangement into layers, as described above.

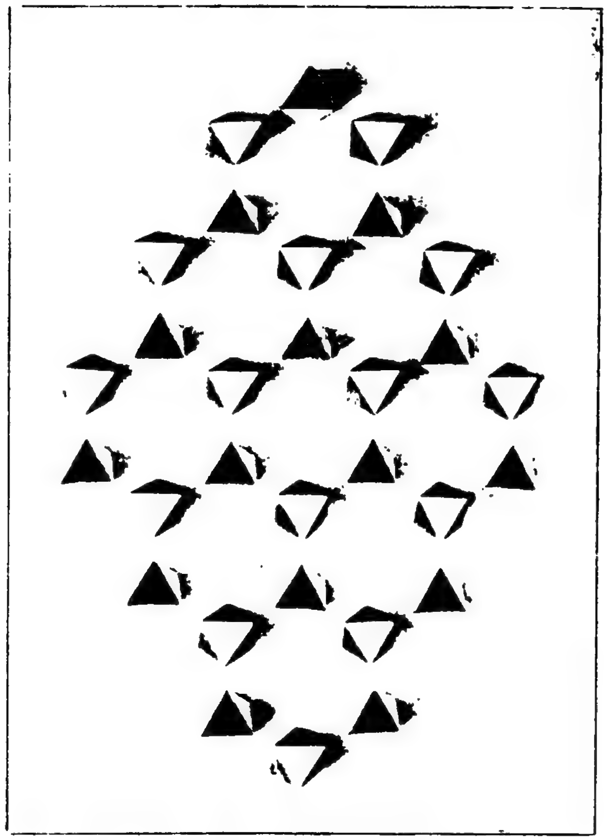


FIG. 223. GRAPHITE

CONCLUSION

WITH the information revealed in Occult Chemistry a great expansion of our knowledge of Chemistry lies in front of us. It is just because this expansion is inevitable, that our clairvoyant investigators have toiled patiently for thirty years. They have claimed no recognition from chemists and physicists, because truth accepted or rejected is truth still, and any fact of nature seen and stated clearly will sooner or later be woven into the whole fabric of truth. The fact that this generation of scientists hardly knows anything at all of an extraordinary work of research extending for thirty years matters little, when we contemplate the long vistas of scientific investigation which the imagination sees awaiting mankind.

Acknowledgments

I desire to express my deep sense of obligation to the following members of the Theosophical Society, who gave their voluntary services in drawing various diagrams: 1. S. V. Kanakasabha Pillai, Executive Engineer, Retired, Public Works Department, Government of Madras; 2. S. Narayanamurty, Retired Draughtsman, Superintending Engineers Office, Bezwada; 3. J. Lippincott, Ojai, California, U.S.A., who, during a few weeks' stay at Adyar Headquarters, drew the large diagram of the Periodic Table, given as the frontispiece; 4. Arthur N. Relton, England; 5. Harry S. Banks, New Zealand; 6. F. L. Kunz, U.S.A., who 25 years ago gave assistance in the construction of the model of the four Lemniscates depicting the Periodic Table. Fig. 14. After millimetre squared paper had been mounted on a number of rods he mapped out the position of the elements, a work re-done by Mr. Relton.

I must express my hearty thanks also to Mr. V. John, owner and manager of Klein and Peyerl, who for thirty years have provided me with the necessary blocks for this and other works. This firm has put at my disposal all their talent in the way of draughtsmen, etc. and for *Occult Chemistry*, Mr. John has himself given much advice and assistance for the blocks.

C. JINARĀJADĀSA

ATOMIC NO.	ELEMENT	ANALYSIS OF THE STRUCTURE OF THE ELEMENTS	NO. OF ANU
1	Hydrogen	(2H3'+H3)+(3H3)	18
	Adyarium	4H3+4Ad6 or Ad12+Ad24	36
	Occultum	2H3+Ad24+Oc15+Oc9	54
2	Helium	2H3+(2H3'+H3)+(3H3)+2Ad24	72
3	Lithium	(4Li4)+Li63+8Ad6	127
4	Beryllium	Be4+4 (4Be10)	164
5	Boron	(4B5)+6 [4(2H3)+Ad6]	200
6	Carbon	4+4 (C27+C26)	216
7	Nitrogen	N110+N63+2N24+2N20	261
8	Oxygen	(55N2+5.0.7)+(55N2+5.0.7')	290
9	Fluorine	2N110+8 (2Be4+H3'+Li4)	340
10	Neon	Ne120+6 [Ne22+(3Li4)+(2H3)]	360
	Meta-Neon	Ne120+6 [Ne22+mNe15+L7+H3]	402
11	Sodium	Na14+2Na10+24Na16	418
12	Magnesium	4 [3 (3Mg12)]	432
13	Aluminium	6 [Al.9'+8Al.9]	486
14	Silicon	8 [B5+4Si15]	520
15	Phosphorus	6 [(B5+3N6+3P9)+(Li4+3Be4+3P9)]	558
16	Sulphur	4 [3 (3S16)]	576
17	Chlorine	Cl.19+2Na10+24Cl.25	639
	Proto-Argon	Ne120+6 [N63+Ne22+L7]	672
18	Argon	Ne120+6 [N63+Ne22+Ar14]	714
	Meta-Argon	Ne120+6 [N63+Ne22+mNe15+mAr6]	756
19	Potassium	(N110+6Li4)+9Li63	701
20	Calcium	Ca80+4Ca160 or Ca80+4 [Ca45+Ca70+Ca45]	720
21	Scandium	(4B5+Be4)+3 [N110+4 (2H3)+Ad6]+ 3 [N63+2N24+B5]	792
22	Titanium	(Ne120+8)+12Ti14+4 (Ti88+C27+C26+1)	864
23	Vanadium	(L7+4B5)+3 [N110+N20+4 (2H3)+Ad6]+ 3 [N63+2N24+N20+N6]	918
24	Chromium	(8N6+8Ad6)+4 (Ca160+2Cr25)	936
25	Manganese	N110+14Li63	992
26	Iron	14 [2Fe14+Fe16+Fe28]	1008
27	Cobalt	14 [2Fe14+Fe16+2Co11+Co8]	1036
28	Nickel	14 [2Fe14+Fe16+2Co11+Ni10]	1064
29	Copper	Cl.19+2 [2Be4+2Ad6]+24 [Cl.25+2B5+Cu10]	1139
30	Zinc	(Zn18)+4 [3(3S16)]+4 [4Zn20+3Zn18'+Cu10]	1170
31	Gallium	6 [(Ga7+3Ga15+3Ga20)+(B5+3Ga13+3Ga18)]	1260
32	Germanium	(Be4+2Ad24)+8 [4Ge39]	1300
33	Arsenic	6 [Al.9'+8 (2N9+Al.9)]	1350
34	Selenium	Zn18+4 [3 (3Se10+3Se10+3N2)+Se153]	1422

ATOMIC NO.	ELEMENT	ANALYSIS OF THE STRUCTURE OF THE ELEMENTS	NO. OF ANU
35	Bromine	Cl.19+2 (Be4+2H3+2N2)+24 (Cl.25+3Ge11)	1439
36	Krypton	Ne120+6 [N63+N110+Ne22+mNe15+Ar14]	1464
	Meta-Krypton	Ne120+6 [N63+N110+Ne22+Ne22+Ar14]	1506
37	Rubidium	(3N110)+16 [Li63+Rb12]	1530
38	Strontium	(Sr96)+4 (2Ca160+2Sr24)	1568
39	Yttrium	(Ad24+Yt16)+6 [N63+N110+Yt44+(4Yt8+2Ad6)]	1606
40	Zirconium	(Ne120+8)+12Zr36+4 (Zr212+C27+C26+1)	1624
41	Niobium	(2Ad24+N9)+6 [N63+N110+Yt44+Nb60]	1719
42	Molybdenum	(N2+Sr96)+4 (2Ca160+2Mo46)	1746
43	Masurium	(3N110)+16 [Li63+Ma29 (a or b)]	1802
44	Ruthenium	14 [2Fe16+2Fe14+2Ru17+2Ru19]	1848
45	Rhodium	14 [2Fe16+2Fe14+2Rh20+2Rh17]	1876
46	Palladium	14 [2Rh17+2Pd15+2Pd17+2Pd19]	1904
47	Silver	Cl.19+2(m-Ne5+2H3+2N2)+24(Cl.25+3Ge11+Ag21)	1945
48	Cadmium	Cd48+4[3 (3Se10+3Zn18'+4Zn20)]	2016
49	Indium	3 [2 (In16+3Ga15+3Ga20)+(In14+3Ga13+3Ga18)]+ 3 [(In16+3Ga15+3Ga20)+2 (In14+3Ga13+3Ga18)]	2052
50	Tin	Ne120+8 (4Ge39)+6 Sn126	2124
51	Antimony	3 [2Sb128+Sb113]+3 [2Sb113+Sb128]	2169
52	Tellurium	(Cd48+3)+4 [3 (3Se10+3Te21+4Te22)]	2223
53	Iodine	Cl.19+2 (3Be4+2H3)+24 (Cl.25+3Ge11+5.I.7)	2287
54	Xenon	Ne120+6 [Xe15+Xe14+N63+2N110+Ne22+ mNe15+Ar14]	2298
	Meta-Xenon	Ne120+6 [2mXe18+N63+2N110 Ne22+mNe15+ Ar14]	2340
55	Caesium	(4N110)+16 [Li63+2Ma29a]	2376
56	Barium	(I.7+Sr96)+4[2 Ca160+2Mo46+Ba33+Li63b+Ba80]	2455
57	Lanthanum	(Ne120+I.7)+3 [N63+N110+Mo46+Ca70+ Yt44+Nb60]+3 [N63+N110+Ca45+Ca70+ Yt44+Nb60]	2482
58	Cerium	Ce667+4Zr212+4 [Ca160+Ce36+C27+C26]	2511
59	Praeseodymium	Ce667+6 [Pr33+N63+N110+Yt44+Nb60]	2527
60	Neodymium	Ce667+4 [2Ca160+2Mo46+Nd65]	2575
61	Illinium	(4N110)+8 (2Li63+Il.9)+8 [2Li63+Il.14]	2640
	X	14 [3X30+3X28+X15]	2646
	Y	14 [3X30+2Y29+X28+X15]	2674
	Z	14 [3X30+3Z31+Cu10]	2702
62	Samarium	(2Sm84+4Sm66)+2Sm101+24 (Cl.25+4Ge11+Ag21)	2794
63	Europium	Eu59+4 [3 (3Se10+3Eu26+4Eu31)]	2843
64	Gadolinium	Ne120+3 [2Sb128+Sb113+(Ca45+2N24)] +3 [Sb128+2Sb113+(Ca45+Mo11+2N24)]	2880

ATOMIC NO.	ELEMENT	ANALYSIS OF THE STRUCTURE OF THE ELEMENT	NO. OF ANU
65	Terbium	Ne120 + 8 (4Ge39 + 2Mo46 + I.7) + 6Sn126	2916
66	Dysprosium	Ne120+3 [2Sb128+Sb113+(Ca45+2Mo11+2N24)] +3 [Sb128+2Sb113+(Ca45+2Mo11+2N24)]	2979
67	Holmium	Ho220+4 [3 (3Se10+3Eu26+4Eu31)]	3004
68	Erbium	(Cl.19+3Sm84+6Sm66)+2Sm101+24 [Cl.25+4Ge11+Ag21]	3029
	Kalon	Ne120+6 [Xe15+Xe14+2N63+2N110+2Ne22+2mNe15+2Ar14+Ka12]	3054
	Meta-Kalon	Ne120+6 [2mXe18+2N63+2N110+2Ne22+2mNe15+2Ar14+Ka12]	3096
69	Thulium	(4N110)+16 [2Li63+Tm40]	3096
70	Ytterbium	Yb651 +4 [2Ca160+2Mo46+(Ca160+Yb48)]	3131
71	Lutecium	Lu819+6 [N63+N110+Lu53+Ca70+Lu36+Nb60]	3171
72	Hafnium	Hf747 +4 [Zr212+4Hf36]+4 [Ca160+Ce36+C27+C26+Ge11]	3211
73	Tantalum	Lu819+6 [N63+N110+Ta63+Ca70+Yt44+Nb60]	3279
74	Tungsten	Lu819+4 [2Ca160+2Mo46+Ca160+Yb48]	3299
75	Rhenium	(4N110)+16 [2Li63+Re57]	3368
76	Osmium	14 [4X30+3Z31+Os32]	3430
77	Iridium	14 [4X30+2Ir27+2Ir26+Ag21]	3458
78	Platinum	14 [4X30+2Ir26+2X28+Ag21]	3486
	Isotope	14 [4X30+2Ir27+2X28+Ag21]	3514
79	Gold	Au864+2 (Sm101+2Au38)+24 [Cl.25+4Ge11+Fe28]	3546
80	Mercury	Au864+4 [3 (3Se10+3Cl.19+4Te22)+Se153]	3576
81	Thallium	Tl.687+3 [2Sb128+Sb113+(Ca45+Tl.44+2N24)] +3 [Sb128+2Sb113+(Ca45+Tl.44+2N24)]	3678
82	Lead	Tl.687+4 [Ca160+Mo46+4Sn35+Pb31] +4 [Ca160+Mo46+4Ge39+Pb21]	3727
83	Bismuth	Tl.687+3 [2Sb128+Sb113+(Ca45+Mo46+2N24)] +3 [Sb128+2Sb113+Ti88+(Ga20+4Zr13)]	3753
84	Polonium	Po405+4 [3 (3Po17+3Po33+4Po33')]	3789
85	85	Au864+2 (Sm101+2Au38)+24 [Cl.25+2+4.85.15+Fe28]	3978
86	Radon	Ne120+6 [Xe15+Xe14+2N63+3N110+3mNe22+3mNe15+3Ar14+I.7]	3990
	Meta-Radon	Ne120+6 [Xe15+Xe14+2N63+3N110+3mNe22+3mNe15+3Ar14+I.7+mRd7]	4032
87	87	(5N110)+16 [3Li63+87.27]	4006
88	Radium	Lu819+4 [3Ca160+3Mo46]+4 [3Li63+Cu10]	4087
89	Actinium	Lu819+3 [N63+N110+Mo46+Ca160+Yt44+Nb60]+3 [Zr212+Sb128+Ac116]+8Li63	4140

ATOMIC NO.	ELEMENT	ANALYSIS OF THE STRUCTURE OF THE ELEMENT	NO. OF ANU
90	Thorium	Lu819+4 [Zr212+Sb128+Ac116] +4 [(Ca160+Mo46+2Li63+C27+C26+1)]	4187
91	Proto-Actinium	Lu819+3 [N63+N110+Mo46+Ca160+Yt44+Nb60] +3 [Zr212+Sb128+Ac116+Pa29] +8Li63	4227
92	Uranium	Lu819+4 [3Ca160+3Mo46]+4 [3Li63+ Ur36+Ur19]	4267

This Table includes a comparison between the scientific and the occult atomic weights. The scientific atomic weights were calculated from the International list of atomic weights 1949, where O = 16.00 and H = 1.008. The final decision as to the names of elements Nos. 43, 61, 85 and 87 was made too late to be used in this book.

ATOMIC NO.	ELEMENT	SYMBOL	NUMBER OF ANU	NUMBER-WEIGHT HYDROGEN SCALE	SCIENTIFIC ATOMIC-WEIGHT HYDROGEN SCALE	EXTERNAL FORM
1	Hydrogen	H	18	1.00	1.00	Ovoid
	Adyarium	Ad	36	2.00	——	Ovoid
	Occultum	Oc	54	3.00	——	Ovoid
2	Helium	He	72	4.00	3.97	Star
3	Lithium	Li	127	7.06	6.89	Spikes
4	Beryllium	Be	164	9.11	8.94	Tetrahedron
5	Boron	B	200	11.11	10.73	Cube
6	Carbon	C	216	12.00	11.91	Octahedron
7	Nitrogen	N	261	14.50	13.90	Ovoid
8	Oxygen	O	290	16.11	15.87	Ovoid
9	Fluorine	F	340	18.88	18.85	Spikes
10	Neon	Ne	360	20.00	20.02	Star
	Meta-Neon	mNe	402	22.33	——	"
11	Sodium	Na	418	23.22	22.81	Dumb-bell
12	Magnesium	Mg	432	24.00	24.13	Tetrahedron
13	Aluminium	Al	486	27.00	26.76	Cube
14	Silicon	Si	520	28.88	27.84	Octahedron
15	Phosphorus	P	558	31.00	30.73	Cube
16	Sulphur	S	576	32.00	31.81	Tetrahedron
17	Chlorine	Cl	639	35.50	35.17	Dumb-bell
	Meta-Chlorine	mCl	667	37.06	——	"
18	Argon	Ar	714	39.66	39.68	Star
	Meta-Argon	mAr	756	42.00	——	"
	Proto-Argon	pAr	672	37.33	——	"
19	Potassium	K	701	38.94	38.79	Spikes
20	Calcium	Ca	720	40.00	39.76	Tetrahedron
21	Scandium	Sc	792	44.00	44.74	Cube
22	Titanium	Ti	864	48.00	47.52	Octahedron
23	Vanadium	V	918	51.00	50.55	Cube
24	Chromium	Cr	936	52.00	51.60	Tetrahedron
25	Manganese	Mn	992	55.11	54.50	Spikes
26	Iron	Fe	1008	56.00	55.41	Bars
27	Cobalt	Co	1036	57.55	58.47	Bars
28	Nickel	Ni	1064	59.11	58.52	Bars

ATOMIC NO.	ELEMENT	SYMBOL	NUMBER OF ANU	NUMBER-WEIGHT HYDROGEN SCALE	SCIENTIFIC ATOMIC-WEIGHT HYDROGEN SCALE	EXTERNAL FORM
29	Copper	Cu	1139	63.28	63.04	Dumb-bell
30	Zinc	Zn	1170	65.00	64.86	Tetrahedron
31	Gallium	Ga	1260	70.00	69.17	Cube
32	Germanium	Ge	1300	72.22	72.02	Octahedron
33	Arsenic	As	1350	75.00	74.12	Cube
34	Selenium	Se	1422	79.00	78.33	Tetrahedron
35	Bromine	Br	1439	79.94	79.38	Dumb-bell
36	Krypton	Kr	1464	81.33	83.04	Star
	Meta-Krypton	mKr	1506	83.66	——	"
37	Rubidium	Rb	1530	85.00	84.80	Spikes
38	Strontium	Sr	1568	87.11	86.93	Tetrahedron
39	Yttrium	Yt	1606	89.22	88.21	Cube
40	Zirconium	Zr	1624	90.22	90.50	Octahedron
41	Niobium	Nb	1719	95.50	92.17	Cube
42	Molybdenum	Mo	1746	97.00	95.19	Tetrahedron
43	Masurium	Ma	1802	100.11	98.21	Spikes
44	Ruthenium	Ru	1848	102.66	100.90	Bars
45	Rhodium	Rh	1876	104.22	102.1	Bars
46	Palladium	Pd	1904	105.77	105.9	Bars
47	Silver	Ag	1945	108.06	107.0	Dumb-bell
48	Cadmium	Cd	2016	112.00	111.5	Tetrahedron
49	Indium	In	2052	114.00	113.9	Cube
50	Tin	Sn	2124	118.00	117.8	Octahedron
51	Antimony	Sb	2169	120.50	120.8	Cube
52	Tellurium	Te	2223	123.50	126.6	Tetrahedron
53	Iodine	I	2287	127.06	125.9	Dumb-bell
54	Zenon	Xe	2298	127.66	130.3	Star
	Meta-Xenon	MXe	2340	130.00	——	"
55	Caesium	Cs	2376	132.00	131.9	Spikes
56	Barium	Ba	2455	136.39	136.3	Tetrahedron
57	Lanthanum	La	2482	137.88	137.8	Cube
58	Cerium	Ce	2511	139.50	139.0	Octahedron
59	Praeseodynium	Pr	2527	140.39	139.8	Cube
60	Neodymium	Nd	2575	143.06	143.1	Tetrahedron
61	Illinium	Il	2640	146.66	145.8	Spikes
	Meta-Illinium	——	2736	152.00	——	"
	X Interperiodic	——	2646	147.00	——	Bars
	Y "	——	2674	148.55	——	Bars
	Z "	——	2702	150.22	——	Bars

ATOMIC NO.	ELEMENT	SYMBOL	NUMBER OF ANU	NUMBER-WEIGHT HYDROGEN SCALE	SCIENTIFIC ATOMIC-WEIGHT HYDROGEN SCALE	EXTERNAL FORM
	Isotope Z	——	2716	150.88	——	Bars
62	Samarium	Sm	2794	155.22	149.2	Dumb-bell
63	Europium	Eu	2843	157.94	150.8	Tetrahedron
64	Gadolinium	Gd	2880	160.00	155.7	Cube
65	Terbium	Tb	2916	162.00	158.0	Octahedron
66	Dysprosium	Ds	2979	165.55	161.2	Cube
67	Holmium	Ho	3004	166.88	163.6	Tetrahedron
68	Erbium	Er	3029	168.27	165.9	Dumb-bell
	Kalon	——	3054	169.66	——	Star
	Meta-Kalon	——	3096	172.00	——	"
69	Thulium	Tm	3096	172.00	168.1	Spikes
70	Ytterbium	Yb	3131	173.94	171.7	Tetrahedron
71	Lutecium	Lu	3171	176.17	173.6	Cube
72	Hafnium	Hf	3211	178.38	177.2	Octahedron
73	Tantalum	Ta	3279	182.17	179.5	Cube
74	Tungsten	W	3299	183.28	182.5	Tetrahedron
75	Rhenium	Re	3368	187.11	184.8	Spikes
76	Osmium	Os	3430	190.55	188.7	Bars
77	Iridium	Ir	3458	192.11	191.6	Bars
78	Platinum A	Pt	3486	193.66	193.7	Bars
	" B	——	3514	195.22	——	"
79	Gold	Au	3546	197.00	195.6	Dumb-bell
80	Mercury A	Hg	3576	198.66	199.1	Tetrahedron
	" B	——	3600	200.00	——	"
81	Thallium	Tl	3678	204.33	202.8	Cube
82	Lead	Pb	3727	207.06	205.6	Octahedron
83	Bismuth	Bi	3753	208.50	207.6	Cube
84	Polonium	Po	3789	210.50	208.3	Tetrahedron
85	Astatine	At	3978	221.00	208.3	Dumb-bell
86	Radon	Rn	3990	221.66	220.2	Star
	Meta-Radon	——	4032	224.00	——	"
87	Francium	Fr	4006	222.55	221.2	Spikes
88	Radium	Ra	4087	227.06	224.3	Tetrahedron
89	Actinium	Ac	4140	230.00	225.2	Cube
90	Thorium	Th	4187	232.61	230.3	Octahedron
91	Proto-actinum	Pa	4227	234.83	229.2	Cube
92	Uranium		4267	237.06	236.2	Tetrahedron

NOTES AND REPORTS OF CERTAIN OF THE INVESTIGATIONS

THE purpose of publishing these extracts is to show the technique and conditions under which the work was done. The reader should study these side by side with the diagrams given earlier. In order to facilitate this the extracts are arranged in the order in which the subjects and diagrams appear in the book and page references given. The objective nature of Mr. Leadbeater's clairvoyance appears very evident.

The observations were made by Mr. C. W. Leadbeater and the questioner was Mr. C. Jinarâjadâsa. All were made between 1922 and 1933 and took place in Australia or at Adyar, Madras. Miss K. V. Maddox was the stenographer in Australia.

Heavy Hydrogen—Deuterium, p. 41

The following observation of the electrolysis of water was performed at Adyar. Vessels containing distilled and tap water were used and two copper terminals attached to the house mains were placed in the water. The current was D. C. At 2-30 p.m. Mr. Leadbeater sat by a window with the two receptacles before him.

(The current is turned on.)

C. J. Is this Hydrogen coming off here?

C. W. L. It is happening very slowly.

C. J. The main thing is, is this the ordinary Hydrogen or a double variety?

C. W. L. I do not see anything different yet. Wait a minute. Wouldn't you do it more quickly if you gave it something to combine with, if you put in old rusty nails? (There were no nails, so a rusty key was put in.)

C. J. Here is distilled water. There is something coming. I can see the gas coming quickly.

C. W. L. This probably is not particularly pure, you know.

C. J. Plenty of Hydrogen coming out there.

C. W. L. And it is supposed that one in a thousand will be double Hydrogen?

C. J. Double the weight, but what is its construction nobody knows.

C. W. L. Well, wait a bit. We'll see. It does not form bubbles as quickly as the other did.

C. J. This is ordinary water; it has more dirt in it, and so more Hydrogen is released. Still all the same Hydrogens?

C. W. L. I have not seen anything yet that I can differentiate.

C. J. Shall I slow it down?

C. W. L. No. If we have to wait for one in a thousand, we'll probably have to wait some little time. (After half a minute:) Are they supposed permanently to keep this double form? Because there is one thing there—you know the shape of the thing? Now sometimes two come out crossed, like crossing each other.

C. J. Two what?

C. W. L. Hydrogens. They lie across one another like that (illustrates by making a cross with his fingers). They may separate again. It is only a temporary alliance I think. Ordinary Hydrogen when you have him is unmixed.

C. J. Does he go like this? (drawing two circles crossing).

C. W. L. He is ovoid. In some cases there is another ovoid lying across him. You might say he had married, but I am afraid divorces are possible in that union.

C. J. Well, will you investigate if both Hydrogens are alike. We found in Hydrogen two triangles. Is it that of these two Hydrogens one is a more positive variety?

C. W. L. There are the two kinds that meet in that queer way.

C. J. They do not hold?

C. W. L. They do not necessarily hold, but I presume they might do so. They can apparently enter into that temporary alliance and then fall away again; but some of them do not.

C. J. When they enter into alliance, do the separate sphere walls coalesce?

C. W. L. No. They lie across one another. (Makes a drawing.) The Hydrogen is generally eggshaped, but there may come another fellow who for the time seems to be like that. (Draws). Yes, they coalesce, but they do not go into one circle like that.

C. J. I see.

C. W. L. You have raised only about three of these. How are they coming on now?

C. J. Here I may get it out of distilled water. Do more come out of the dirty water than out of the distilled?

C. W. L. Only three (double Hydrogen) altogether so far. Now I am waiting for another.

C. J. Do you think it is generated by the electric current? Not a natural thing?

C. W. L. The electric current breaks up the water.

C. J. It may be an artificial product caused by the current.

C. W. L. We would have to take averages, wouldn't we? That is very dirty water. Is it coming more quickly?

C. J. Yes, much more quickly.

C. W. L. Yes, now there is another twisted fellow, crossed. Is there any smell?

C. J. Well, Hydrogen has not much smell anyway. Can you see any more in the stream coming out from the point?

C. W. L. It is all rather a phenomenon, as far as I can see.

C. J. And then?

C. W. L. There is one fellow holding together with another that has gone up to the ceiling.

C. J. Distilled water now.

C. W. L. Not so rapid. Strange they should cross one another in that queer way. In the three or four we have seen, there are the two different kinds of hydrogen of course. That seems a fortuitous cross; but it must be something more than that, because there are always two different kinds.

Observation at a distance. Masurium, p. 53

Mr. Leadbeater soon found that it was not necessary for him to have an element before him for investigation, provided he knew where that element was to be located. Thus, for instance, in connection with the investigations at Adyar in 1933, one element hunted for was Masurium. It seemed likely that this new element might be found among Rubidium salts, but I had no Rubidium salts, and at the moment of investigation I could not procure any in Madras. It was therefore necessary to look for it elsewhere. I had with me several chemicals procured from Hilger and Co. Their address was on the samples, in Rochester Place, Camden Road, London. Mr. Leadbeater could find this street easily, and from Adyar he located the laboratory of Hilger and Co. He then saw where all the chemicals were stored in bottles on shelves. The next thing was to find out where were the bottles containing Rubidium salts, and for this he had to tap the mind of one of the assistants who was working among the bottles; he then located the salts, but Masurium was not among them. He promised to take up the investigation at night during sleep. Meanwhile I found that Masurium was discovered in certain oxides. These oxides were among the rare earths that I had procured from Hilger and Co.

Another instance of the way that an examination could be carried on at a distance was in the case of the Radium emantions. We had not Radium at Adyar but some was kept at the Madras Hospital. I went to the hospital and saw where the needles of Radium were kept in a lead cabinet. When I got back the picture in my mind of the room and the cabinet was sufficient and he then watched the Radium emanations.

Isotopes

One noteworthy fact recorded in these investigations was the existence of isotopes. It was in 1913 that isotopes were discovered by chemists. But already, in 1907, isotopes were recorded, and diagrams given, of the isotopes of the inert gases, Neon, Argon, Xenon and Krypton. One was noted of Platinum and another in 1909 of Mercury.

Isotopes were not specially sought for by the clairvoyant investigators but some were found and catalogued though no special names were given to them except to use the term "meta" before the name of an element or to speak of a Platinum B or Mercury B.

In April 1908 Mr. Leadbeater wrote to Dr. Besant, "It is quite possible that Radium being a heavy element there may be two or three forms of it differing only by a few Anu in each spike or funnel." He also sensed the possibility, which has now become an accepted fact, that the speed of a particle can change its mass. For in the same letter he writes "As to the matter of atomic weight, it occurs to me that that may not always depend entirely on the number of Anu. May it not conceivably be affected by their arrangement and the direction and rapidity of their motion"?

Search for an Isotope of Chlorine, p. 66

C. W. L. Can we get hold of Chlorine? I have some impression that there is a male Chlorine and a female Chlorine. This is how he looks then. Has Chlorine 12 funnels at the top and 12 at the bottom?

C. J. You would expect the atoms to be of the same weight.

C. W. L. I do not know why they need to be the same weight. We do not know which of these things are on the whole positive and negative. Negative I suppose on the whole?

C. J. Roughly speaking all Chlorine is.

C. W. L. It is a dumb-bell thing with a little funnel running up here. A queer greenish looking thing. His funnels are exactly the same as ours and both his globes. This is the same as ours. I will let him go and we must catch some more.

That is the same as ours. Here is one which looks a little more dropsical. He is a good deal fatter in the middle. His funnels are more stumpy. Look here, this is different. You have got this drawn as a cone, but really it comes down more like that and bends in more sharply. The thing is not an absolute straight cone, not quite so big a difference as that. It is according to what it allows for. Now the point of this fellow is—now just wait one moment. It is here; In the ordinary variety there are two two's, one above the other. In the Isotope the upper two becomes a three.

C. J. That gives one extra Anu in each funnel, 24 extra Anu in all.

C. W. L. And now wait a minute, you said he was fatter in the middle. Now, wait a minute, he is a little elusive. I have not got him quite in focus yet.

C. J. I should think the central bar was the same.

C. W. L. No, it is fatter, and I am trying to see at the moment why it careers about bewilderingly. I don't quite get it. Can you change one of these things into another.

C. J. They say they are the same in weight. Let us try these globes at the top. Normally the globe contains four Anu in the centre and six Anu round him.

C. W. L. No, you are looking at it edge wise. I am turning him round flat to you. Now the central part looks like a hexagon. If you turn him round, don't you see that there are really six Anu arranged not in a hexagon. I can't get him right.

C. J. Six points of an octahedron?

C. W. L. That is it. You are right. There are four of them on one plane and when you look at it edgewise you see only three. There are six Anu in the middle of this creature, in the middle of each globe instead of four. Yes, that is it. There are six in the middle of each of those and that somehow makes a fatter

cigar. I don't see that the cigar is different, but the cigar is thicker and that is because of the action of the two globes. It shortens him in proportion to his length. Let this fellow go and let us get another.

C. W. L. We have got six Anu instead of four in each globe. That makes 28 extra. That is all I can raise. Let us catch another. We had better catch about forty. Look for another fat one. They are coming floating up from the sea. The thinner things are what we dealt with before. I get only a few of those. That thing is not pure in some way. Its numbers are the same, but it has that curious effect. It has been acted upon by something, and it has not sharpened it off. We can clean one of those things. I can take him and shake him free on the physical plane. You would call it green scum. You can blow it off; wash it away, and then it appears to be an ordinary globe. It has the effect of that, but what that was I don't know. But it does not alter the thing fundamentally. He has been in some condition or some combination and has only just escaped from it and he has not shaken it off. Only a very few. Let us get another fat one. Here is a fine pot-bellied creature like a mandarin. He is rather sluggish. His funnels are of the larger kind. The triangle is askew. It is a triangle in three dimensions. There are only those three and they are arranged at the corners of some. The three is all right and his globes are of the six variety.

Right at the centre of the bar there is a fellow five; the reason why he is there is because the six of the globe is especially attached and they try to get together and they crush the bar.

C. J. Do you see if there is any pull between the five of the centre bar and the top and bottom.

C. W. L. It is always to the centre and the bar with the end globes are attached. That is the thing that holds them spinning. The six either pulls more strongly or offers more to pull. It is the same number, but it is drawn. I believe you are right there because that would account for the fattening of the bar that he is a more stumpy bar.

C. J. How are the six arranged, because we have not got them in the others?

C. W. L. Yes the corners of an octahedron.

C. J. Those are the outer six?

C. W. L. But the inner six also.

C. W. L. The inner six is a sphere by itself. The whole thing is not flat like this, it is an octahedron set askew to the other. It is like so many guns arranged not to interfere with one another's fire.

C. J. That is Chlorine. We have found two varieties.

We might just as well have hit on one of those fat ones first. There is a good deal of chance about this business.

C. J. Do you think he would get into salt?

C. W. L. You can try. Think of the holy water. Now hold steady because I am going to fetch it. I am getting mainly out of that particular salt the 35 varieties. He is not 35; he is 35.5.

C. J. When you did the original investigations we got them out of mineral water bottles.

C. W. L. I think the salt we used this morning seems to be mainly of the 35 variety. Sea salt does not appear to be this; it has traces of all sorts of other things. That is refined salt.

We will go to mother ocean. The sea is rather mildly salt. Here is a molecule, no, he is the 35 variety.

Yes, we can find your 37 in the salt from the sea, at least I have found one, let us hunt further. It means bringing one down from the etheric to the physical.

Yes, there are both kinds anyway.

I think there are some, but I think there are very few. I did find some but only comparatively few. There are some of the fatter kind also.

C. J. Is he Chlorine B?

C. W. L. Can these things be changed one from the other at all? They are two different

weights. They behave just the same chemically. Perhaps they were originally all alike.

I can imagine any number of transitional conditions, but they would die out. They would not be permanent, there would be some left.

Artificial and Natural Erbium, p. 70. Help from Nature Spirits

Mr. Leadbeater could investigate at any time, provided his brain was not tired. Several of the investigations in 1933 took place in the evening while he was lying on a sofa and a masseur was working on his legs and feet. One particular evening while the old masseur was pounding him, we were trying to locate Erbium. Erbium is of the same family as Samarium and Iodine which had already been described. C. W. L. thought he would make an experiment as we had no Erbium at the moment. He put together the parts that appeared in the central rod of Samarium, this time three of them instead of two, to see if they would cohere. They would not; but when the connecting rod of Silver, of 19 Anu, was placed in the middle of the three, there was not only perfect cohesion but also a very great vitality. Then the funnels of Samarium were stuck on; everything held. This seemed to show that the experiment was a success and that what was put together was really an atom of Erbium.

But obviously this was not enough, and so the search continued. What was to be done next? We knew that Iodine exists in the sea. Immediately it occurred to him to look into the sea for Erbium. He got into touch with a sea nature spirit, a Triton, who, he knew, lived in the sea near Adyar beach. He asked the Triton if he knew anything of the kind in the sea, and showed him the alchemically constructed Erbium. The creature answered, "Yes, we will bring it," and quickly brought a handful of natural Erbium. The atoms of Erbium which the Triton brought were like spiculae, or a handful of tiny pencils held in the hand.

Another case when nature spirits were used by Mr. Leadbeater was when he investigated Polonium in August 1933. Polonium exists in pitchblende and pitchblende is found in some mines in Ceylon, in the district of Sabaragamuwa. Mr. Leadbeater had been in that district in the early years of his work in Ceylon; so that night, while asleep, he went to Ceylon and located the mines. He arranged for some nature spirits to act as scouts and look for the element. This was a kind of game for the creatures. At last they found three Polonium atoms.

An Artificial Element created from Gold and Sulphur, p. 72

Mr. Jinarājadāsa once took, as a tonic, a particular preparation made according to the Ayurvedic or Indian system of medicine, a compound of Gold and Sulphur. After the many processes of fractionation according to the Ayurvedic compounding, the Gold ceases to be colloidal and exists in some other form. When this compound entered the body, the life forces in the body were discovered to have made a new combination. The funnels in Gold had disappeared, leaving only the central "solar system" made from Occultum. The funnels of Sulphur had been separated, and two funnels floated above the top of the system and two funnels at its base. This was a new artificial element, which circulated in the blood stream. No investigation was made as to what happened afterwards to the artificial combination.

Ozone, p. 96

C. J. Now, what about Ozone? Are there two types, one male and a half, and one female and a half?

C. W. L. We must try to look at the production of Ozone and try to make three Oxygen into two Ozone.

C. J. Or pick up one and describe him.

C. W. L. What we want to know is how he is produced.

C. J. No, what we want to know is, are there two kinds?

C. W. L. It looks as though there must be. Are the atomic weights of the Oxygen snakes the same?

C. J. Yes, we have taken them to be so.

C. W. L. I think we may take it that there are two kinds of Ozone. Yes, but what

I do not understand is that one kind appears to be lighter than the other. It cannot be that it is lighter, but there must be some repulsion.

C. J. Otherwise they look the same, I suppose.

C. W. L. You have them arranged in a triangular way. You see that these two cross one another like that. They come nearer together and the other takes up its place so that the three are equidistant.

C. J. I suppose that the first two are intertwined.

C. W. L. Yes, but you know how they are intertwined. One goes round this way to your right. The other goes that way, do you see, and here is another which goes the same way, but half way between the two. But they all come together at the same nodes, they all come together there. Your original two cross one another at a point and this is the same.

C. J. That is important.

C. W. L. But what is odd is that each unit which has two positives and one negative, two males and one female, these promptly rise as though they were lighter. But they are not lighter because the number of Anu must be the same.

C. J. Here is the scheme.

C. W. L. Yes, there ought to be three equidistant as you look at them. That is the impression which it gives me, but remember that exists in many dimensions. What I want to know is whether what you call Ozone down here on this level is one male and two female. There is also other Ozone which is one female and two male, but that goes to higher levels. I mean that physically it ascends.

C. J. Is the upper region of the atmosphere made of that?

C. W. L. It does not become lighter than Hydrogen, but it ascends. It does not go very high. I am going to try the Blue Mountains. Have they never discovered Ozone at higher levels?

C. J. I do not know. I do not see why not.

C. W. L. Is this Ozone supposed to be permanent?

C. J. I should not gather so.

C. W. L. It seems to me that it has a tendency to revert.

C. J. The main thing I gather is that it is unnatural to hold these extra male and female Oxygens together.

C. W. L. Yes, but I do not yet see why the masculine Ozone ascends, because the number of Anu is the same. It is probably a question of polarity.

The five interlaced tetrahedrons, Ne 120, p. 29 and p. 250

From the days of the Pythagorean School, certain relations among the Platonic solids have been known. Thus the primary solid is a tetrahedron composed of four triangles, with one as the base, making a three-sided pyramid. When two of these tetrahedrons interlace symmetrically, two more Platonic solids can be constructed. First by joining the eight points of the two tetrahedrons we have the cube, then by joining the intersecting points of the two tetrahedrons we have the points for the octahedron. As already mentioned, the dodecahedron and the icosahedron can be derived from *five* intersecting tetrahedrons. This complicated figure is that which we identify as Ne 120, and it was known to the investigators when they were doing their work in 1907. A striking fact to be noted is that there are two forms of this group of *five* interlaced tetrahedrons; dextro and laevo, one turning to the right and the other to the left.

Sodium Hydroxide NaOH, p. 268

C. W. L. Does this eat things, is it like an acid?

C. J. Yes, it eats fats and such things; it is caustic and burns.

C. W. L. Then I have to mix these two things together as it were?

C. J. No, I had it as a solid, but now it has changed. It was in pure white bars. I must get some more.

C. W. L. Was it sealed up in any way?

C. J. Only with a cork.

C. W. L. Moisture has got in, for there is a good deal of water here. It is not water, it is OH. It has acquired fresh Hydrogen. You do not suppose that it has resolved

itself into its elements? I expect that I can do something. It has eaten away the whole cork. Ah, this must be the caustic at which I am looking by its intense activity.

C. J. What is it like? I imagine that the Oxygen would not change.

C. W. L. It has arranged itself differently. Wait till I get it clear. Sodium also is a thing which rather clings to its original shape. It does not very easily change.

C. J. It did with Chlorine in common salt, NaCl.

C. W. L. It was the Sodium there which broke up.

C. J. Both of them.

C. W. L. I wish I could draw; I have not the right curves. How does it curve? These are funnels whose ends come in much more than normally. They would be flat normally, but they are not now. There ought to be twelve of these we know.

C. J. The Oxygen goes round the regular Oxygen curve.

C. W. L. Yes, it is flattened down. The Oxygen is widened out and this goes into the centre instead of leaving it hollow. Here we have Hydrogen distributed rather oddly. You may say that that thing is floating there, but the thing is that each of these seems to belong to, to be connected with, four of those funnels. I do not know, but I think its real direction may be more to this central ball. Its lines of force are running among them like this.

C. J. That is practically the same as in OH.

C. W. L. Of course, but this is NaOH. How is this going to get clear when they break up? Do they break up easily?

C. J. It combines.

C. W. L. Yes, I see that it does that. In that of course there is no Oxygen. The difference is that the Oxygen winds round the Sodium, and instead of the bar being ovoid, it becomes cigar-shaped owing to the Oxygen around it.

C. J. Has the Oxygen become fatter?

C. W. L. Shorter and fatter. Fatter it must be, unless the particles are much further apart. This is about the curve. They do not come further than this proportion from the central thing. What is this anyhow? NaOH. It is not a pleasant thing.

C. J. No, they use it for washing pots and pans and making soaps.

C. W. L. It is unpleasant and feels as though it would burn one.

C. J. Yes, of course it would, it is caustic.

Hydrochloric Acid, HCl, p. 269

C. J. This is Hydrochloric Acid. Can you feel it is powerful?

C. W. L. I feel power radiating from it.

C. W. L. I have no Carbon in this, apparently only Hydrogen and Chlorine. I have a dumb-bell here.

C. J. You have two half Hydrogens floating top and bottom or dancing round the middle bar?

C. W. L. The curious thing is—of course it ought to be a gas because Hydrogen and Chlorine are both gases, but the Hydrogen appears to set up a tension underneath it. You see rather the two central globes of the ends of the dumb-bell.

C. J. How does it set up a tension—as in Hydroxyl?

C. W. L. In Hydroxyl it floats very loosely. In this case, it does not at all; somehow it is drawing up the central ball towards it. You are getting the thing in a tense condition like a string. If I take away the Hydrogen, the Chlorine jumps back into its ordinary form. In Hydroxyl it kept up its line down the centre of the Oxygen snake, but does not make any difference to the Oxygen snake. In this case it does make a difference to the Chlorine atom. It is like the centre of a sphere, the little globe with the funnels running up from it, the globes are drawn up and down and yet at the same time the whole dumb-bell is somehow compressed—now why? I suppose when the Hydrogen is separated in two triangles a tension is set up between the two. They are trying to get together

again. Now that compresses the central bar of the dumb-bell, but instead of pressing in the two flower centres, as it were, the two globes at the end of the bar and in the middle of the funnel, it draws them up towards it. How does that work? Why should it at the same time draw the balls towards it and compress the central ball of the dumb-bell? It looks like an exactly opposite action.

C. J. Evidently the two ends of the Chlorine dumb-bell must be of a differing electrical quality, so that when the positive half of Hydrogen goes to the top of the negative end they pull to each other naturally.

C. W. L. They pull each other, but then why do they exercise such an attraction? I am beginning to see—these two central globes, they also have a tension between them.

C. J. You know that they really belong to the central rod of five spheres.

C. W. L. They have an attraction to it and while they are pulled away by the Hydrogen they are yet trying to get back to one another.
The effect produced is as though those two central globes were connected by a bar and so when you pull them up they must remain the same distance apart, although they are pulled up beyond their funnels, and consequently the central thing has to be shortened. The effect is as though the funnels and the central bar were all round an axis that ran between these two and you pressed the funnels a little nearer to one another without interfering with the central globes.

C. J. Do the funnels droop down?

C. W. L. The funnels appear to remain just as they were, alternately pointing up and down, but they are nearer to one another and the central bar is shortened by this procedure.
That thing is like a spring coiled up. It wants to go back and there you may have an explanation of its power to eat into things, that it is in this condition of tension, and probably as it eats into things the spring extends. That would account for its extraordinary power; at least it might. When you see two or three of these things together I never know which is the cause of the others or which is the effect of some other cause which I do not see.

Carbon Dioxide, CO_2, p. 271

C. J. Can you get hold of Carbon Dioxide and see how Oxygen behaves there?
Do the Carbon funnels get broken up?

C. W. L. Yes, but there is a centre piece of sorts in Carbon?

C. J. Only four loose Anu.

C. W. L. Is Oxygen ever broken up? I don't think we have ever met with it yet?
Carbon ought to have eight funnels, ought it not?

C. J. Yes, it has eight funnels in pairs.

C. W. L. Yes, I can't get the hang of this quite. I don't seem to be able to get the Carbon right.

C. J. He is broken up, I suppose.
Does it put four funnels on top and four below like a dumb-bell?

C. W. L. No, he seems—I don't get it clear. You say I am not likely to see CO, what about CO_2?

C. J. CO_2 is the thing which makes Carbonates.

C. W. L. But is not seen alone?

C. J. I think not. It is perhaps.

C. W. L. No, I am at present acquiring a thing in which the two Oxygens stand side by side, and they seem to distribute the Carbon at each end of themselves.

C. J. Two funnels over each end?

C. W. L. Or are they balls now and not funnels? The thing rotates. What part of it then does the plant use?

C. J. Carbon, I should think.

C. W. L. I must try to follow him into that.

C. J. The plants take the Carbon and give out the Oxygen. They are useful because they release Oxygen.

C. W. L. Yes, it would be easy enough to take the Carbon away. I don't see exactly

why the two Oxygen snakes remain together. Why they break away when you remove the Carbon funnels.

C. J. Do they keep together?

C. W. L. It must be the coherence of the Carbon in some way.

C. J. What has happened to those four loose Anu at the grand centre?

C. W. L. I must go through the reconstruction of the thing and see where they go. Possibly they are the link.

C. J. I was going to suggest that they perhaps keep the two Oxygens in place.

C. W. L. Yes, only the Carbon is no longer projecting all round as it did before but is gathered at the ends.

C. J. At each end of these Oxygens? That means two funnels to each end. Two funnels at each end of each of the Oxygens.
Are they funnels and not spheres?

C. W. L. They are truncated beasties; they are flattened, but not exactly spheres. More pear-shaped.

C. J. And two side by side?

C. W. L. Yes.

C. J. Those two have not got their joining Anu there, but the joining Anu has gone to the centre, the bar of the "H"?

C. W. L. Yes, but it is a different arrangement from those we have had before.

C. J. How are those four Anu placed in the centre—flatwise?

C. W. L. It is very difficult to get directions—they are whirling about and there is no top or bottom. You would have to represent them—no.

C. J. Are they at the ends of a tetrahedron?

C. W. L. No, I seem to have one in the middle and three arranged askew round it.

C. J. They are all positives, those four?

C. W. L. Yes. That is Carbon Dioxide. It is in a kind of shell spinning round vigorously.

C. W. L. The Oxygen has broken up the Carbon thing badly.

C. J. Rearranged it?

C. W. L. It is very broken up. It sends two funnels to the bottom and two to the top. The whole thing is a kind of firework effect. It is less like a molecule than any of the others. All the others have had a certain regularity in form. It has one side up. It looks like an "H" from a certain point of view. All the other things have been capable of being turned about. As you turn him endwise, he is more like a line. This Carbon Dioxide must belong to a lower order of things. It is stable, is it not?

C. J. Yes, I think so.
Now here is Carbon Dioxde, four Anu in the middle.
Now what I want to know is do the funnels stick out or are they side ways or revolving on a plane?

C. W. L. I think sloping upwards; remember the whole of this thing revolves, the whole lot of it goes round like that. What is this Carbon Dioxide? Now let us see First you want Carbon Dioxide. Now see here I will catch one. We are breathing them out ourselves all the time. I don't understand exactly how these things act. They rise very equally. Here is one anyhow. You see he has that double arrangement on each side of the centre.

C. J. Four Anu in the middle.

C. W. L. Yes, the Anu in the middle are like tiny points of light. The whole thing is swirling round. Up at the top there are two funnels. They seem to me to stand up like a creatures' ears and then they are twirling round all the time. They stick up looking to me like a pair of rabbits' ears, but the whole thing is spinning round.

C. J. Get one of these CO_2 and remove one Oxygen and then see what happens to the other funnels.

C. W. L. But, see here, you can't remove the funnels. The funnels stay behind. You can pull out the Oxygen, but the funnels stay behind and they go and join the rest of the outfit. They go and join the rest and the whole seems to me to break up. I can't hold it together. If I withdraw one Oxygen the other Oxygen slips away.

Wait a minute, perhaps I can hold it when I take one away. The whole tendency is for the whole thing to go off like an explosion. The Carbon funnels reunite themselves and the tendency is for the other Oxygen to fly off. Suppose I hold him and put him together with the Carbon. I think I can artificially make him into your Monoxide. But he is very volatile, not a secure creature; he does not very readily take up that combination.

Carbon Monoxide, p. 271

C. W. L. You say I can get Carbon Monoxide. Where will I find him?

C. J. I can't produce him, I am afraid. Monoxide is a rare thing unless you knock out one of those Oxygens and see what happens.

C. W. L. The Carbon would go back more. You would then have the Carbon in two groups, top and bottom of the Oxygen. Yes, in that case with four funnels at each end.

C. J. Yes, and then I have four Anu.

C. W. L. They had four of those Anu together, because there is no other place for them. I do not know what else they would do. Can these lose Anu? It is rather a fresh order as far as arrangements go.

C. J. How are the four funnels? Merely flat-wise with four of these loose Anu in the middle, making a centre?

C. W. L. Yes, I was trying to see why they did not fit. It is an unsatisfactory looking thing. It is different from all of the rest.

C. J. I want to know where these four Anu are.

C. W. L. The four Anu appear to be balanced round the centre of the Oxygen.

C. J. Down inside?

C. W. L. No, outside and equidistant round it like a cross in the middle of the thing, outside but equidistant from the two ends. But this is a thing I have made myself and I am not prepared to say it would come out like that in nature. I have taken one; this thing is all the time trying to escape apparently to get another Oxygen. My CO is an artificial beast entirely and may not represent the genuine thing. I have let him run his own way. That is the scheme of it. Can I make CO_2? I can't make the thing stick together. Is CO_2 a thing you can get by itself, because I can't make my fellows stick together. When I add this third one he simply won't add at first, but if I hold him steadily together a bit, then the four will more or less adjust themselves to go round between in the middle of three instead of two making three legs to a stool, in three parallel lines. The four Anu will go into the middle of that lot, but I cannot distribute the funnels at all. They stick where they are. I have got this Oxygen stuck on, and this Oxygen is free. It has nothing to balance it at either end. Secondly, it is all the time spinning the arrangement round, and if I take my will off it, it will not hold together.

Calcium Carbonate, $CaCO_3$, p. 274-6

C. W. L. This is one of those CO_3 things. How is the Calcium distributed? Had we any drawing of that?

C. J. Yes, we were looking at Sodium Carbonate, (p. 272). Here is an Oxygen and the Sodium went right through. And then here was a third Oxygen, which seemed to break up the Carbon.

C. W. L. The two of these things each have one Sodium, and the third Oxygen got the Carbon funnels, but the four Anu of the Carbon centre became a grand centre in the middle round which these other things revolve.
This is the same thing; but substitute Calcium for Sodium; you have only one Calcium and you have two Sodium.

C. J. Calcium consists of four funnels and a grand centre.

C. W. L. A much bigger centre. This is quite a different thing, a central globe of eighty Anu; this is a much bigger business.

Can you double this and have two Calciums? I don't quite see how you could have two of Calcium. If so, the arrangement would have to differ. I can see the one, but I cannot quite see how you could have two.

C. J. Then don't bother. There is no need, because Calcium has a particular valence.

C. W. L. Yes, but your three Oxygens, one of your three Oxygens has Carbon just as it had before. But your two other Oxygen pillars divide the Calcium between them.

C. J. Well, Calcium is composed of four funnels and how do they divide?

C. W. L. I have four funnels, one at each end of the two pillars of Oxygen, but the thing in the centre is a queer complex looking beastie. Those four Anu revolve round their common centre.

C. J. Which four? In Calcium?

C. W. L. No, when we broke up something else.

C. J. Yes, four Carbon Anu, the nucleus of the Carbon.

C. W. L. But here I have the nucleus of the Carbon forming apparently satellites to the centre of the Calcium which is a much bigger globe.

C. J. Is the central globe from Calcium?

C. W. L. The central globe of Calcium takes the central position in this scheme and has apparently four Anu revolving round it like moons, like satellites. The Calcium centre globe does not break up. But because of this central thing it seems to me that there is a slight curvature of the Oxygen pillars. It looks to me the central thing is so big comparatively that the others seem to curve a little; it is very slight. It is spinning all the time, and the way the thing seems to me to show itself is in a certain waving of the two ends, instead of going round absolutely on its axis like that, it seems to me as though it were going a little like that at the two ends. All these things appear to either generate or to be accompanied by mild electrical discharges or phenomena. This thing is either generating electricity in its spinning or it is being spun by electricity.

C. J. They postulate electrical phenomena; there is a sort of exchange of electrical qualities.

C. W. L. I am not at all sure that electricity is not keeping the whole thing going. Either it is that or in its action it is generating electricity; which is likely, either, neither or both, I suppose you can't tell?

C. J. I could not answer, but I could well imagine that wherever there is a combination you might have a new type of force, flowing from the superphysical.

C. W. L. Because that would be the work of the Second Outpouring, the work of the Second Aspect of the Logos. The only thing is I wish I knew which is the cause and which is the effect. As far as I can see it is equally possible that electricity may be producing or driving these things. Producing the phenomena or that the phenomena may be producing the electricity, because though the things, the spinning posts of Oxygen and this little central ball, do not touch one another, remember their auras, so to speak, their fields of activity do, and that there is friction between all that. The friction may be producing the electricity or on the other hand the electricity may be causing the rotary motion. So far as I can see, you may have it either way. How am I to find out? Don't you think this is some higher grade or more primitive type of electricity with which we are dealing. This is another atomic thing, molecular electricity. Would not that be something finer, (if one can think of electricity being finer) than what is produced by machinery. Is electricity known to exist in different layers, I have not heard of it? You see the electricity with which we generally deal is emphatically physical electricity. But there is that which corresponds to it on the astral plane which we have always

called astral electricity, but that may not be the right name for it.

C. J. There must be on the astral plane the energy of the Third Logos, and electricity is one form of it on the physical.

C. W. L. Yes, it is supposed to correspond to Fohat.

C. J. It is the astral Fohat.

C. W. L. This is not exactly that. I think I can get at that. The electricity which you produce by friction, the thing you produce that way has a connection through the lowest ether. It will attract purely physical objects, bits of paper, anything. Now, I think that we can manufacture and utilize a kind of electricity, if the name is applicable to it, it looks like it in every way. Yes, do you remember when she (Dr. Besant) breaks up the elements, she has four stages, corresponding to the four etheric levels. I am not quite sure, but I think that all the electricity that we normally use works on that fourth level. But that if you break up your chemical atoms, that is the chemical atoms of the thing, the electricity which is generated by them is on that next third level, and therefore I do not think it would be perceptible to your instruments down here. But if it were, you would consider it a very weak and infinitesimal charge down here, but it is not in the least infinitesimal on its own plane. It seems to produce or be produced by very rapid motions indeed. So it is a very strong thing on its own level, although it amounts to a very weak imperceptible trickle down here. Do they know anything about any finer kind of electricity?

C. J. I have not heard of it.

C. W. L. It is just possible that the usual kind, I take it as certain that it exists, is on the fourth ether and a different kind on the third ether. I take it as practically certain to be finer kinds on the second and the first. Would any of those produce a perceptible effect on the physical plane?

C. J. The effects produced would be very slight.

C. W. L. They would be enough to affect things in a vacuum tube.

Sulphuric Acid H_2SO_4, p. 281

C. W. L. It is a tremendously powerful thing evidently. This is one of the things which eats other things away. How does it act? The Oxygen must get out and combine.

C. J. Then the Oxygen is fairly free to go off?

C. W. L. I am not quite sure about that. It is a different arrangement somehow. Let me look. Yes, this is odd. How do you make this thing anyhow? How do you imprison this Oxygen is this peculiar way?

C. J. This is a tetrahedron evidently. The Hydrogen is evidently at the corners of the tetrahedron floating about.

C. W. L. They have got that the wrong way round. They have got Sulphur in the middle. It does not seem to go that way. The four Oxygen lie flat and make a star in the middle radiating out from one another. We generally think of them as constantly upright. If you stand them upright you have a cross. Outside of each of those is the Sulphur funnel, but instead of having three slices in it, it seems to have nine. That is to say your three are broken up in each funnel. There is one funnel to each Oxygen. Here, let me draw the thing. The Oxygen is a snake, but the snake is in a kind of arrangement like that. The nine things are arranged in a circle round this point only they do not lie flat, but in a circle. Then over here floats half a Hydrogen. But the Oxygen is in the middle and here in the middle there is nothing visible, but the force wells up there.

C. J. Is it a force which comes up from the underworld? It would be a negative

force as there is no centre in the middle.

C. W. L. There is no visible centre, but there is a very tremendous force.

C. J. The whole thing is negative, the whole compound is acid.

C. W. L. It does not act negatively. Its action is very vigorous.

C. J. It is force, then, which is coming from the super-physical. We have called the force which comes from the super-physical down on to the physical the positive and the other the reverse, the negative.

C. W. L. The whole thing seems to me a very powerful and active thing. I don't know how much is involved by the use of the term negative, but if you mean thereby a sort of passive thing lying there and doing nothing, I don't think it is. It is a very powerful thing, but nevertheless it may be negative from your point of view.

C. J. What I mean is, that sort of formation would jump at a union with a positive thing. Does this?

C. W. L. That is what I am going to see.

C. J. The suggestion is that four Oxygens with the four funnels of Sulphur together make a negative group. That is why Hydrogen comes along and, being positive, combines and similarly Calcium will combine and Sodium. The attraction is between positive elements and this thing which is a negative form. I don't know whether it will work.

C. W. L. This thing breaks up most other things. Of course it can do that by attraction as well as by repulsion. It does not follow that it breaks up by the force it throws out, it may do it by sucking in.

Ferric Chloride, $FeCl_3$, p. 286

C. J. Here is Ferric Chloride, with Iron and three Chlorine atoms. I gather the Iron would remain just the same?

C. W. L. It is a very queer thing with Iron, it is so spiky.

C. J. I have never yet solved why 14 bars, because it seems such an odd thing. It looks, what shall one say, not proportioned.

C. W. L. Iron does not seem to have any centre of its own. The fourteen pairs are not radiating from a centre. It is as though seven pencils had been put through

C. J. That is not the way we have got it. We had six balanced, and then one grand top and one grand bottom.

C. W. L. You mean, one with six round it, and one at the top, but sufficiently opposite one another?

C. J. They are not symmetrical.

C. W. L Not equidistant?

C. J. No, because the top and bottom cannot be equidistant, because you cannot get fourteen equidistant in a sphere.

C. W. L. There is another four just like this on the other side which does not show. I am getting the idea of that.

C. J. Unfortunately we have three Chlorines to go into the thing which is a very heavy business.

C. W. L. That will make a total of about nineteen hundred Anu. It is a little complicated, but I think we can sort it out. Only it will not go into the ordinary perspective. You see I have a mass of funnels here which radiate round my bars, only I can't exactly arrange them in relation to each other. I have an arrangement which I have not seen before. You see in the case of the dumb-bells in each of my Chlorines I have central forms for the flower at the end. You have six flowers. I have six centres of flowers. The funnels make the petals. The funnels are scattered off differently. I have got these six centres and I have also three bars, but they are shut in from themselves into something like eggs, as it were, rather than bars. I get a curious central grouping which appears to get inside the Iron—a grouping of a number of those spheres. The centres of the flowers appear to have got inside the Iron. But then outside apart from that here are

all these radiating funnels. It is as though the centre thing was separate, and these others were equidistant. They do not seem to have any connection with individual bars, but the bar business is spinning round on its own account in the middle, and the other funnels are radiating roughly about equidistant. The groups are not connected with the bars.

C. J. How many groups are there ?

C. W. L. Now wait a moment; they are not particularly grouped. They are about equidistant. They are sticking out, like an echinus, like spikes all round. The thing that bothers me is that though they appear to project, the distances between them are practically equal all round.

Phosphoric Acid, H_3PO_4, p. 294

C. W. L. I will tell you what I get here, but I don't see why I get it. I don't understand why it is sometimes one and sometimes the other. I have two combinations which make H_3PO_4. From one point of view he looks like a cross; from another point of view he is radiating towards the centre of a tetrahedron. If I flatten him out so as to draw him he becomes a cross, but if I don't he is hopeless to draw, because some of the things are sticking from you, and some toward you. But it is as though from the centre they were pointing towards the sides of a tetrahedron. That is your O_4 which appears to be a body itself as it were.

Now, in some cases that breaks up the Phosphorus and it would appear that in some cases it doesn't. I have an arrangement in which the six funnels of Phosphorus disappear and their twelve constituent cigars or whatever you call them, wine-cup arrangements, themselves corresponding to the ends of the four Oxygens. That is to say three to each, and then your Hydrogens float properly divided above those. But I have another arrangement in which the Phosphorus does not break up like that but retains its six funnels and they point not to any particular Oxygen snake, but to the centre of the whole, and meantime, the Oxygen inside the group of four Oxygens are revolving much more rapidly than they are.

C. J. The six funnels pointing practically like a cube ?

C. W. L. The four all acting like a centre, all spinning round violently—the others moving but not spinning with them. In the other case the Oxygen had broken up the thing.

In one case as the Oxygen went round, the four little wine glasses went with it. But now the Oxygen is spinning very rapidly on itself and these other things moving more slowly, pointing to the centre of the Oxygen. The Oxygen set of four is revolving by itself in the middle. These others are pointing at the centre round which it is revolving, but not apparently attached to the Oxygen spinners.

You have got two Hydrogens in some cases, you know. In that second case when the Oxygen is spinning so much more rapidly, the Hydrogen is removed to another subplane, broken up further. Your threes are then broken up.

C. J. Which threes ?

C. W. L. Our Hydrogen splits into three triangles. But your triangles in that case break up so that you get each triangle made of three balls. Well, two of those balls float above each of the Phosphorus funnels, but that has taken it up another subplane of the physical.

C. J. Two of them, what about the third ball ?

C. W. L. That is planted over another ball, over an intermediate funnel, and there are six funnels in this scheme, and over each of those float two Hydrogens.

It is all on another subplane, because the triangle which is on a subplane above has now been broken, so it has gone one stage further back. You have

two Hydrogen atoms here. That gives you four triangles, but instead of four triangles you have six groups of two.
Why should there be those two things which have the same constituents, but differently arranged chemically? Those things will analyze exactly the same practically, though of course they are different. Why different and what is the result of the difference, I don't know.

C. J. You said there were six groups, taking Hydrogen at a higher stage.

C. W. L. Look here. Hydrogen contains 18 Anu, and they are arranged, I think, in six groups of three. And two of these float over each funnel, only sometimes they are these two and sometimes one of those and one of these. But why? We can only note the facts and sort them out.

Ammonia, NH_3, p. 297

C. J. I cannot image the Nitrogen ever being broken up.

C. W. L. The three Hydrogens will float round him. The Nitrogen is a very inert beastie.

C. J. How does the Nitrogen arrange itself?

C. W. L. The Hydrogens distribute themselves quite evenly round. You can have three double triangles.

C. J. It is quite easy, a three-decker affair.

C. W. L. There is the egg and in the middle there would be the balloon.
You would get three negatives. I am getting almost a dumb-bell effect, because here are three negatives on a plane circling round that, and three positives on a plane circling round this. They are on a plane. I put this at the end, but really those are going round this that way. Supposing this to be your egg, there is one lot going round here which are negatives and there are another lot going round here which are positives, outside this thing which is apparently unchanging except I see an unfamiliar layer inside the Nitrogen.
These things act from outside rather magnetically, affecting the movements inside the Nitrogen, directing them, getting them, as it were, out of place. The whole thing is rolling round. They have lengthened the balloon somewhat. If we could suppose that the three things circling round here have set up some sort of funnel or strain here and these others have set up a strain, then that thing between the two is somewhat lengthened, is drawn in some direction towards the strain.

C. J. Look at these two things revolving. There is one revolving clock-wise and the other opposite-wise?

C. W. L. I don't think they do. If they did, they would twist the Nitrogen atom and set up a strain in him?
Which is the negative half?

C. J. Presumably that top fellow is the positive and the bottom is the negative.

C. W. L. The Hydrogen on the whole is positive.
My impression is that these Anu arranged in a triangle are positive and the things arranged in a line are negative. Wherever there are two of them—there is a mistake there and I will show you the mistake in that drawing. I would have expected that there ought to be two lines in one. In one triangle, that is all right in one triangle, the things are all pointing to a centre. That is negative and that is positive.

C. J. There are two negatives and one positive.

C. W. L. Then you would say that the triangle arrangement does not matter. It is a question of whether the Anu are pointing inwards or outwards. Then the one that has two negatives is the negative triangle obviously.

C. J. In this thing this lower triangle is the positive and the upper triangle is the negative

C. W. L. Then it will be the positive which is directed towards the negative and the negative which is directed towards the positive.

Ammonium Hydroxide, NH_4OH, p. 298

C. J. We have had one where there are three Hydrogens. This is NH_4 and an additional OH.

C. W. L. Do you know why they put that OH separate?

C. J. Because, through processes, you can remove it.

C. W. L. That is that Hydroxyl stuck on again, so the only thing is that here are four Hydrogens instead of three. This is not very different. You seem to have a sort of cross.

C. J. What of the Hydroxyl?

C. W. L. No, I have not got the Hydroxyl at all yet. I am trying to sort out the other part. It seems to me that you get more of these things going round. Your Oxygen and your Nitrogen waltz round one another and the other fellows make rings round them. You have got your five Hydrogen all right. One of them seems to be occupied in the Oxygen and Hydrogen group I think. There are four in this dance apparently and when the thing holds together they dance round the two and if you pull that away they adhere to the Nitrogen and the other fellow is linked to the Oxygen. But even he would break up if you pulled them apart.

First of all those three bodies come off with this. The three at the top and the three at the bottom, but they are very liable to break away altogether. When you pull him apart I rather think he returns to Oxygen and Hydrogen and Nitrogen.

C. J. Those other two things which go round are in two circles. Are there four negatives on top? If you look at one of the Hydrogens you will find three balls in a straight line.

C. W. L. Yes, that is all right. You mean the straight line keeping to one end of it and the triangles to the other? Now we have four triangles.

C. J. Are all of them negative?

C. W. L. I don't think they are. I think there are three negatives and one positive. I think I can shift them about. I can change them round and it does not appear to make any particular difference. I can take out that positive and change him for a negative and the thing spins just about the same, except that it does not get that wave round the surface. Does that matter?

C. J. No, but if you look at this thing where there are three there in the top three they are all negative. I took for granted they were. How are they distributed in the rings?

C. W. L. There are three above one another, one being two straight lines of three. The top one being two straight lines of three.

C. J. Two triangles of three?

C. W. L. Yes, but sometimes they are triangles and sometimes they are straight lines. That is what you call negative and positive. There are two positive in one ring, and two negative in another, and a negative and a positive in the middle. But in this other scheme you have four of those bodies in each ring and only two rings. But as I found it that time, I had three straight lines and one triangle at one end of it and three triangles and one straight line at the other. But I changed the places forcibly so that I had four triangles at one end and four triangles at the end. It does not make any difference except in the interior. The thing follows round, the rotation. We will call them positive and negative. The triangle as he goes round affects the surface of the thing round which he is rotating, and makes a tide in it. The straight line does not, so you have tides running round the surface of your Nitrogen. You have a tide following him round as the thing revolves and if you don't get that tide, then because of that he swells a little more at one end. Does that make any difference? I don't myself see that it makes any difference.

but there is that fact, if that is of any use. It might be worth while making a note that there is a kind of tide on the surface of the interior atom which is made by the attraction of that Hydrogen. The straight line does not make the attraction.

Urea $(NH_2)_2CO$, page 301

C. J. This is a very interesting investigation. You have got Carbon Monoxide, that is this thing—the Oxygen and the four Anu circulating round the middle. Now also we have the Nitrogen balloon with two Hydrogens, NH_2.

C. W. L. I don't remember NH_2.

C. J. What is the general description of the figure of Urea?

C. W. L. Well, Carbon and Oxygen in the centre, and these other things, the two Nitrogens each with a Hydrogen.

C. J. On either side like supports?

C. W. L. Yes, with the Hydrogen floating about them. The central thing can draw away the Hydrogen under certain conditions, I think.

C. J. You remember in the Water molecule the way the Hydrogen is distributed. Is that the same distribution here or is it more like in Ammonia? What is the position of the Hydrogen?

C. W. L. We start with them attached to the Nitrogen in the regular way as in Ammonia. They always attach to Nitrogen—two rings, you can't reproduce that scientifically. If you throw your force into the Oxygen it will draw the force away from the Hydrogen and keep the Hydrogen floating over its ends above the Carbon. You run the risk of losing your Nitrogen. Would anything corresponding to that be the difference between the two kinds, artificial and natural Urea, at which you are aiming? Is that which they make chemically as stable as this produced naturally?

C. J. Yes, I think so. It is the same thing as far as they know. In any living thing or a thing taken from living tissue I think there would be that difference, that the factor of life would come in, and would draw the Hydrogen more to the Oxygen.

C. W. L. If that life, whatever life is, vivified the Oxygen, won't you have, in anything taken from living tissue, that factor of intensification by the vitality globules?

Nitric Acid, HNO_3, p. 302

C. W. L. There is only one Hydrogen here. We had this before.

C. J. No, it was Hydrochloric Acid.

C. W. L. But there is no Chlorine in this.

C. J. NO_3 ought to be a group by itself.

C. W. L. This appears to be a liquid.

C. J. Yes, but it is only held in water.

C. W. L. If that is the case, then this is likely to explode.

C. J. No, it is diluted.

C. W. L. There is Hydrogen in that.

C. J. Yes, Nitric Acid is HNO_3.

C. W. L. It is the Nitrogen which seems to suffer and not the Oxygen particularly. There are three Oxygens. They seem to be very little affected, but the Nitrogen practically disappears.

C. J. How are the three Oxygens arranged? In the form of a triangle?

C. W. L. They stand round the remains of the Nitrogen, but the Nitrogen is broken up rather badly. These balloon arrangements we have destroyed practically. It is a little difficult to follow the condition of it. How are we to arrive at it? See here (diagram). I cannot make it quite clear; it is so askew. The spirals are the Oxygens; they stand around it. But there are four more things which stand round it as sentinels, and they have no particular connection with anything else. It is a regular maze; that is why I have marked the Hydrogen plus and minus.

C. J. That is quite clear now.

Sodium Nitrate, $NaNO_3$, p. 304

C. J. The NO_3 will be the same as in Nitric Acid. The Sodium is broken up hopelessly.

C. W. L. Yes, but there is much more.

C. J. Yes, because we have a larger number of funnels.

C. W. L. It has the same middle.

C. J. Do not bother about the centre; make it the same.

C. W. L. I am not sure that it is the same. You mean of course the balloon.

C. J. Yes, the balloon is the same and the three Oxygens are the same.

C. W. L. Yes but the rest is different.

C. J. Well, do the rest of it. The funnels go half way into these balls, I think.

C. W. L. I do not think they do quite. Let us see how it worked when we were doing salt.

C. J. Here it is. It went into groups of two.

C. W. L. All the funnels broke up. The shape disappeared entirely. The Sodium went by twos. They became twelve groups of two funnels. They are here arranged differently.

C. J. You have two balls?

C. W. L. I have a brush; I have three balls.

C. J. Yes, but you have a central brush.

C. W. L. I see what you mean; he is a little larger than the others, but very little, and the funnels are arranged like the rows of a brush instead of being in a group as they were before. They are coming down between the Oxygens.

C. J. Do they come down in three decks?

C. W. L. I have eight in a line coming out from the centre. The funnels are coming out from the centre, sticking out. There are eight of them coming out here and there and there. They all go to the centre.

C. J. Now two of these balls are composed of ten Anu, and some are larger.

C. W. L. Yes, and they are running loose in space inside where the funnels start.

C. J. They are on two planes, I suppose? Is there any connection?

C. W. L. Yes, but I do not know how to draw it. We had better make it like this.
In addition to NO_3 you get an ovoid which is your Na14, and of the other two you get one going round there and one here, but they are going round and do not intermingle. Going round the middle is the ovoid thing with an orbit of its own. The point is that these brushes stick out, four on each side belonging to that set, and four belonging to that one, like this.
There is more of a space here, do you see?

C. J. But are all the revolutions in one direction?

C. W. L. Yes, they should go all in one direction. I do not think that the motions are retrograde. Originally there were twelve at each end; now the twelve belonging to this fellow make the twelve belonging to the other, four of them between the Oxygens, four there, and four there, do you see? Four from this and four from that make the eight running like the rows of a brush. As you see they are like this. Four and an Oxygen and then another four. They seem to be fairly in the same plane. They may vary a little. Then there is the Oxygen between each of them, and this thing is sailing in the middle inside. I think I understand it now.

Potassium Nitrate, KNO_3, p. 306

C. J. Now look. The difference is that here is Potassium. NO_3 as a group stands together. And here we have Potassium as well as Nitrogen. In Potassium we get two of these centres.

C. W. L. We get nine spikes of sixty-three Anu, and a central group of one hundred and thirty-four Anu, N110+4Li6. The Nitrogen balloon in Potassium is unbroken.

C. J. Yes.

C. W. L. But what bursts him up? I suppose the Oxygen. Oxygen seems to upset everything else in nature, it is so active. It is rather curious. I see a vast number of little things, but the difficulty is to know where they come from.

C. J. They must come from the Potassium.

C. W. L. We must separate it and put it together again. If you could put a tetrahedron

over the head of that thing it would represent the way that they are arranged. But the first difficulty is that the two tetrahedrons are not arranged one on top of the other. They lie between each other like that. They do not point towards one another. They are a little askew, so that they would come in between each other. That is how they stand there, around the central oval. I do not know how you would represent it. It is this business of perspective which makes it so difficult. My specks come in between these, and yet they are not symmetrical. I cannot make them symmetrical.

C. J. These points, remember, are the points of a cube, for two tetrahedrons interlaced make a cube.

C. W. L. Yes. I see that. But they do not fit like that. They must fit in this way. What comes off them first, when you break these up? The Sodium? This is Sodium. I have the wrong thing. Here is Potassium. You see, it is very oddly arranged. The best way I can do it is this. Yes, the whole thing does not seem to be duplicated, but this piece is.

C. J. How duplicated?

C. W. L. I mean that I have two of these things revolving round a common centre, but I do not seem to get this double.

C. J. No, because that belongs to something quite different, something which we have not in Potassium. In Potassium you have only this.

C. W. L. Well then, I have that. I have two of those going round a common centre. Well, these others are Hydrogen. But these other things stand still (there are seven of them, seven N9). It seems to remain as it was, except that there are two specks between the Oxygen, and instead of being as they were before, coming from one common centre, they are one above the other.

C. J. Are they three-deckers? There are three Oxygens.

C W L. Yes, they point like that. (Diagram) You have three bars. One points straight out, one up, and the other down, while the two centres rotate round each other. You get this set arranged round those two in the centre. They are not exactly even. These two are on their own account. They are not equidistant; they are nearer to these. Then you have the four sentinels, and the three Oxygen snakes. In between come those spikes apparently unchanged.

C. J. But here are another six Spikes.

C. W. L. But are not these they?

C. J. No.

C. W. L. I take it that these are they.

C. J. Here is something else which takes the place of the Hydrogen.

C. W. L. I want the perspective of the spikes. Now I shall draw the things which take the place of the Hydrogen. These are part of the Potassium.

Potassium Cyanide, KCN, p. 310

C. J. Here are Potassium, Carbon and Nitrogen together. Potassium has nine spikes, but with a central body. They are like three incompatibles.

C. W. L. Yes, the spikes are a bit awkward.

C. J. We have not had Nitrogen and Carbon before in any combination. We have had plenty of Oxygen-Carbon and Oxygen-Nitrogen.

C. W. L. But this Potassium apparently has the Nitrogen balloon as its centre so that we shall have two of those things.

C. J. We have six funnels and nine cigars.

C. W. L. Yes, but then besides that there is the odd Nitrogen.

All those would surely come in the grand centre. This is in many ways very complicated. These bar ends don't seem to fit in with the things outside.

C. J. In the Potassium Nitrate we had three Oxygens as three posts and the three Potassium bars radiated out and the Nitrogen was in the centre.

C. W. L. But there is a Nitrogen centre to Potassium anyhow.

C. J. Yes, those two were together, side by side.

C. W. L. Only the Potassium centre is more than the Nitrogen balloon.

C. J. Oh yes, more than that.

C. W. L. There are six other things buzzing around it.

The Potassium in this when you separate it has not only a Nitrogen balloon, but also six other things standing round the Nitrogen balloon. I have got Potassium, nine spikes of 63 Anu.

I can get the Potassium pure, that will make it easier in a way. KCN. That is Nitrogen you have there. There seem to be too many of these things. Wait a bit, I am beginning to see a little. It is a shapeless clumsy kind of thing. It looks as though they did not combine properly, rather as though they mixed the—what was that other we had, Potassium Nitrate.

C. J. The other was Potassium Nitrate.

C. W. L. But how did the Oxygens combine—with the Potassium?

C. J. No, they were outside the centre.

C. W. L. How did the Nitrogen combine with the Potassium?

C. J. Those six dance round the balloon.

C. W. L. But then there are two balloons. This thing seems all askew. I can't get him right. Aren't the two balloons side by side, with the six groups from Potassium dancing round them?

There are more things that I can't locate exactly.

C. J. There are seven threes, seven little sixes in twos.

C. W. L. You are thinking of the other things which made part of the Nitrogen beside the balloon.

C. J There are seven threes.

C. W. L. These four stand as sentinels outside. Outside the whole thing?

C. J. Yes, outside the grand thing; they stood as kind of sentinels.

C. W. L. But beside those seven I have got another lot of six little blobs.

C. J. Those are those blobs; there is the balloon of Potassium.

C. W. L. These things, you mean. You see this business in the middle is a regular complication.

I have too many of these central pieces and I do not know where they belong at the moment. I am trying to sort a bit. This is the most bewildering thing I have come to yet. I thought it was loosely compacted.

C. J. I suppose these loose Carbon Anu are doing something by themselves.

C. W. L. They are part of this general mass. I am trying to sort out the thing. I have got too much material I think. It is all moving about; wait a bit, let us try to steady it. I see, yes. Oh, bother, there is no definite relationship between them. They all go round anyhow, and I can't discover yet which is the definite centre.

C. J. Nitrogen is a very dead sort of thing which hardly combines. It does, but very feebly.

C. W. L. It combines to the extent apparently of breaking up. Let us see, there is that lot. I have two steady there curling round. There are ten in that lot. It is so horribly complicated.

C. J. I suppose the balloon remains the same.

C. W. L. Yes, I don't think the balloon is upset, but besides the two balloons—I see where I get those fellows from. Yes, I see there will be two lots of them, that makes the ten, then, I think. I suppose four like those and then these six little brutes here because they are small.

C. J. They come into the middle then, do they?

C. W. L. Those are the ten, I think. Now, wait a minute.

C. J. Then there are seven.

C. W. L. That pear-shaped thing, that has seven in it. I have got too many little apparently disconnected things.

C. J. Can't we map them out? If you describe what there is, we will locate them.

C. W. L. I can't see how that thing can ever arrange itself so as to be satisfactory. I have got my nine spikes and then I have Carbon funnels in among those

nine spikes, but out of proportion to them, of course. I can't hold the thing so as to make a diagram at present. I have got four little spots.

C. J. Those are the four Anu from the Carbons. Those are in the grand centre.

C. W. L. I have these two balloons which go round them keeping opposite to one another. Then outside that I seem to get these ten creatures—ten balls of various sizes. They are not of the same size.

C. J. There are six of three and four of 20's.

C. W. L. Those are the things which are much larger than the others.
Then there are seven of those fellows of nines. That is the lot out of the lower part. How am I to distinguish them. What a spiky-looking brute. I don't like this thing.

C. J. It is a deadly poison.

C. W. L. It is so oddly arranged, or rather it is not arranged at all. It is a kind of conglomerate, and the things are not comfortable together and they are repelling one another and nothing fits satisfactorily.

C. J. We have gone so far as to get at the ring of ten spheres.

C. W. L. It is not even a ring; they are scattered about.

C. J. Well, what is scattered further?

C. W. L. Well, then, let us see. Have we taken into account—I am trying to identify these things. Six of these things are that lot, I think.

C. J. Four of them are the big lot of twenty.

C. W. L. Yes, four will be that lot. Then those other things. How many are they each?

C. J. Nine each, but they are groups of three in each ball of seven, unless they also get broken up. Each of them has little groups of three inside, but I should not think they get broken up.

C. W. L. The threes, of course won't get broken up. We are not high enough for that yet.

C. J. There are seven of them.

C. W. L. Those must be those little compressed looking things.
There is no way in which I can lay this out flat. There are always parts which do not fit in. I have been able to lay the others so that I could group them, even though they did not fit. This will not fit in any way.

C. J. Well, I think we had better just describe where the fellows are—how they are sprinkled about.

C. W. L. They sort of thread about among one another. If I look at it—let me tilt them corner-wise and look at them. Perhaps there is a sort of a shadow of an arrangement that way. No, even that way they don't fit. You will have to put them down as circulating somewhat irregularly, the whole lot of these round that central group. But I cannot make an arrangement of them which seems to put any one into proportion with the rest.

C. J. Those ten balls, those four large fellows and then the six fellows, and these seven, they are all circulating about?

C. W. L. Yes, they all more or less interfere with one another. That is, you know how planets circling round the sun are nevertheless dragged out of their proper course when they get near one another. So these things seem to have an irregular motion, because they are all the time coming into unexpected relations with one another. The funnels lie between the bars and constitute a sort of irregular looking set of radiants.

C. J. How do the bars go?

C. W. L. They are going generally in all directions into space.

C. J. In one plane?

C. W. L. Nothing is in one plane.

C. J. No, but I mean the nine bars radiate out into nine directions in space just as in Potassium.

C. W. L. Yes, they radiate out, but the funnels radiate among them, you see, with rather, if anything, more irregular arrangement than the bars have. None of these things will fit in with one another.
There are nine bars and eight funnels between.

C. J. Does it fit in?

C. W. L. Of course, if you flatten that thing out —but you can't flatten it out, can you?

C. J. We will map it out.

C. W. L. You never can map it out, because it is so irregular and so queer.

C. J. I can't make out the eight funnels and nine bars.

C. W. L. Neither do I, because there would be a hole. Wait I see what you mean by the hole. Oh, I am stupid on this or else it is a very unusual thing.

C. J. Well, let us leave it.

Note.—Mr. Leadbeater repeated the observations later, with results as described by him on page 311.

Methyl Chloride, CH_3Cl, p. 313

C. W. L. I do not understand this process; it seems to me as though the Chlorine had become disintegrated, pulled apart. The Hydrogen lies over the funnels of the Carbon, the positive part of the Hydrogen over the negative and the negative Hydrogen over the positive. The Chlorine in this bottle is broken up and arranges itself over two funnels, a positive and a negative, which must mean, I suppose, that the positive part of the Chlorine has got over the negative funnel and the negative over the positive. But the whole thing is broken up. Do we know offhand which of these little circles are positive and which are negative?

C. J. You cannot tell which is positive and which is negative. We have taken it for granted that the funnels are alike.

C. W. L. You mean that that group which makes the funnel is either a negative group or a positive group?

C. J. We have taken it that all the funnels are the same size and the number of Anu the same at both ends of the dumb-bell. But no attempt was made to identify them, as of either a positive quality or a negative.

C. W. L. Every chemical atom of Chlorine will as a whole have a positive end and a negative end.

The funnels rotate up from a central globe and then these two parts are connected by a rod. I don't see for the moment how I am to make out which is which of these.

C. J. Are they all alike in appearance in this particular compound and what has happened to the central rod?

C. W. L. The central rod appears to have separated so that its constituent spheres are no longer together—the connecting rod I mean.

He had a middle five according to this diagram (page 65)—a five, two fours and two threes. In the connecting rod, the five appears to have gone one way and the rest of the group the other, but why?

C. J. Find out over which funnel the five has gone, and if you shoot down the funnel and see if it is the one where one of those Anu is missing, then we can locate it.

C. W. L. The Anu is missing in the negative funnel.

C. J. If this five is hovering over that one we will know he is positive.

C. W. L. Well, I think he is over a negative funnel. The positive usually has more Anu in it than the negative. But in this case more Anu are hovering over the positive funnel. Wait a minute, I think I see, I am not sure yet. Yes, there is a good deal of breaking up taking place. Is that normal or is it because this is old?

C. J. I can't tell you; of course it is also extremely volatile, and that may be one effect of breaking up. Chloroform is also volatile, but not so much.

C. W. L. The fact for the moment is that in this particular case we have an atom of Chlorine broken up.

C. J. In what way is it broken up? What is the rearrangement of the funnels?

C. W. L. I can hardly trace some of these things, it is broken up a good deal. You see

the funnels are not now definite funnels. You see the thing which holds them together is parted from them.

C. J. The central rod or the central sphere?

C. W. L. The central point of the central rod is apparently the principal thing—the heart of the thing.

C. J. That is exactly what the scientists call this hard core of protons.

C. W. L. I do not see that it is any harder than any of the other. It is just an arrangement of Anu.

Chloroform, $CHCl_3$, p. 314

C. J. Carbon is an octahedron of eight funnels. Chlorine is roughly a negative element. But we found there are two varieties. one of which seemed more positive than the other. Is there any difference in the Chlorines which are tacked on in this molecule?

C. W. L. You mean to say, if there are three Chlorines in Chloroform, is there an isotope? Or if they are all alike is there another variety of Chlorine?

C. J. First examine in any one molecule whether all the three Chlorines are exactly the same.

C. W. L. They are usually attached to positive funnels of Carbon. If I can find a fellow attached to a negative funnel of Carbon that would mean we had a positive funnel in Chlorine.

It seems to me there are a good many more of the old form than of this one which is new to us. I should have said they are half and half. If there are two kinds and they mix together you might have more of one particular kind than of the other. All of them that I have analyzed so far look about the same.

C. J. There is nothing so very obvious?

C. W. L. It is not commonly obvious. This is your Chloroform.

I will make one; he won't stick and won't flow into the other funnels. We can try all sorts of experiments. We might make new elements. You have to slew your Carbon round. I can make them stick but not in the same holes. Yes, I can get the Hydrogen to go in opposite. I believe I have; I can make a molecule out of the three fatter types of Chlorine and a Carbon. I can't get the Hydrogen to adhere very easily. I will try him in different holes. Yes, I can get him going.

C. J. Does he remain permanently?

C. W. L. Yes, he has remained so far.

C. J. See if there will be a mixture.

C. W. L. They don't come out opposite one another. I think the thing will adhere. It looks a bit distorted and unnatural. I can make one with three of the bigger kinds of Chlorine, but then I get my Hydrogen. It does not seem to fit.

They don't somehow lie so evenly. I believe it can be done.

I think the Chloroform life would utilize a thing like that.

Methyl Alcohol, CH_3OH, p. 314

C. W. L. I can take your OH and stick him on instead of the Chlorine.

C. J. How does the Hydroxyl work?

C. W. L. The Hydroxyl particle as I get him is a double snake with half of the Hydrogen at the top of him and half at the bottom; no, the Oxygen is not altered at all.

C. J. You have got two funnels to operate upon with your Hydroxyl?

C. W. L. I have only found one. Let me see what he, O, will do when he is left alone. He promptly severs connection. I stick him on instead of the Chlorine. But when I remove the will from him he does not stay; he pops out. I do not appear to be able to get him to stick together. I put him in all right.

C. J. Over both funnels?

C. W. L. No, I put him over one, what can I put in over the other? I cannot break up my Oxygen.

C. J. The best way is to get a bit of Methyl Alcohol and see how it is arranged.

C. W. L. The Hydrogens would sort themselves like the rest, but I cannot make the Oxygen stay, it is so lively.

C. J. That is why I want to know what is the arrangement in Methyl Alcohol or in all these other alcohols so far as that corner of the Carbon is concerned.

C. W. L. The Logos must be able to do these things, but I cannot make these things stick on. The Oxygen departs as soon as one removes one's will from it You can make these things?

C. J. Yes, but by a round-about process. You can see how it is sticking in this thing. This is a double-decker, but there is the OH and that will also give me the information. I want to know how these two Carbon atoms get tacked on side by side.

C. W. L. They fit pretty fairly as far as I can see. I do not think there is any difficulty there. I think I see how they send lines into one another. The lines are rather curved lines.

C. J. Positive being opposite to negative?

C. W. L. Yes, the Oxygen appears to float there, but I cannot make him stick.

C. J. How does he float now, over both funnels? Does he get bent round?

C. W. L. Yes, I don't seem to be able to attach the thing, and yet he attaches himself.

C. J. The main thing is how does he attach himself?

C. W. L. He appears to spin with the lower end pointed inwards towards the axis of the whole show.

C. J. He gets sucked into a funnel?

C. W. L. He floats partially immersed.

C. J. With half the Hydrogen underneath him?

C. W. L. He appears—that is the trouble; that half Hydrogen has lost its counter-balancing weight; half of him is at the top and half at the bottom.

C. J. Is not there perhaps in this Alcohol a bigger change, or does the Carbon still remain Carbon?

C. W. L. Yes, the Carbon remains Carbon, I think, only I get one Carbon funnel unsatisfied. I can break your Hydroxyl and put part of the Hydrogen on top of that, but I break the Oxygen snake.

I can get one in which the Oxygen snake will combine. I cannot do anything with him. I can lay him across the top of two funnels, though he is still as stiff as a poker.

And then his Hydrogen curves over at each end and hovers. It is a very unstable arrangement. The Hydrogen may break up and the Oxygen disappear.

C. J. The Oxygen insists on standing upright?

C. W. L. I have got him lying horizontally across the two funnels only it is not then at right angles to any of them. It is only lying across between two and spilling a Hydrogen down each funnel.

C. J. How is the other end? Is he simply over one funnel, leaving the other unsatisfied?

C. W. L. Yes. You see, I tried putting the Hydroxyl down one funnel and then taking away one Hydrogen, half a Hydrogen to satisfy the other funnel, but then it won't work. The two half Hydrogens remain and float, but the Oxygen then promptly disappears on his own account. I cannot get this Oxygen to remain still.

C. J. How is it done in the actual combining in your hand?

C. W. L. Well, it is done as I have said by a bar lying across as straight as that, but with its half Hydrogen drooping that way and this way.

Calcium Carbide, CaC_2, p. 273

C. J. CaC is Calcium Carbide and it picks up Hydrogen from the water.

C. W. L. Wait a bit. Let us see how the Calcium Carbide is first.

C. J. Calcium has four funnels.

C. W. L. Calcium is that queer thing with a grand centre. Carbide of Calcium contains two Carbons.

Four funnels standing out equally. I am thinking of the Calcium. That is a tetrahedron with a grand centre.

C. J. How are the Carbon and the large Calcium funnels distributed?

C. W. L. This is quite a new creature. He must be very unstable because the Carbon bounces off at the least opportunity. Where is your Carbon?

C. J. Does it get broken up again? How are those eight funnels of Carbon arranged?

C. W. L. There will be 16 if you have got two Carbons. You see I have here four very fat funnels. I have that queer lamination in the central sphere, an orange-like thing, split up in sections, and then I have four very fat funnels.

C. J. Those are the Calcium funnels.

C. W. L. Yes, but they also absorb into them a great deal which they had not before.

C. J. What have they absorbed into them, anything of the Carbon funnels?

C. W. L. Surely, but what was the original Calcium, that which filled the funnel? The funnel itself is not a solid thing. That which filled the funnels stands in the middle. There are, as it were, four Carbon things, dancing round it and it is all in one fat funnel which is more like a kind of cup.

C. J. What about those eight little individual Anu?

C. W. L. The eight little individual Anu? It looks as though the Carbon funnels were upside down somehow.

C. J. Are they?

C. W. L. I don't see how they can be.

C. J. Are the individual Anu inside that grand thing, because they go in pairs?

C. W. L. I don't thing the grand thing has been interfered with.

No, then are they inside this fat funnel, each fat fellow having two of these Anu because they have four Carbon funnels?

They are, I think, still with their respective pairs. Yes, holding them together.

Acetic Acid, CH_3COOH, p. 315

C. J. It starts the Chain series. How are these things tacked on to the second Carbon?

C. W. L. There are two Oxygens and that would mean apparently a Hydrogen streaming away.

C. J. How is it tacked on?

C. W. L. The Hydrogen is attached only to one Oxygen.

C. J. You need only look at that end of the double barrel affair.

C. W. L. And I have to annex two more Oxygens, and then apparently a Hydrogen.

C. J. Why need you annex them? Can't you look at it?

C. W. L. I don't seem to get him quite that way at the moment.

C. J. There are six Carbon funnels to satisfy.

C. W. L. But aren't there really eight, but two of those are looking into one another? I am not satisfied with the Hydrogen exactly.

C. J. What is the trouble?

C. W. L. You know, the Hydrogen does seem to be attached to the Oxygen. I think I vaguely guess what the chemists may be meaning. You see the two Oxygens are so powerful that they also exercise an attraction. You see, at the other end of the Acetic Acid there are three Hydrogens on three sides of a square. They are all quiescent. They do not disturb one another, but these two Oxygens appear to be so vivid, so vital, that they do exercise a very considerable disturbing influence over the Hydrogen which ought to be in between them.

C. J. They are both tugging at the Hydrogen from two ends?

C. W. L. So that the Hydrogen is not settled. It really belongs to the two Carbon funnels which are between the Oxygens. It is pulled all the time both ways, and it is in a very, what you might call, a very excited condition. It does not fit in at all stably. It looks as though it were intended to be attached to this Carbon funnel, only the Oxygen on each side of it exercises such a disturbing influence that it is almost detached.

C. J. Don't you think the Oxygen is different in the way it is held to the Carbon funnels? Because Oxygen generally

bursts up the funnels and sticks them at the end, and here you have the Oxygen like a bar.

C. W. L. Well, but he is doing his own revolution.

C. J. But flat-wise, horizontal?

C. W. L. Yes, if you can call it so. But lying across two funnels as he did before in some other thing we did. (Methyl Alcohol).

C. J. But he had two half Hydrogens to spill down the funnels.

C. W. L. Possibly he wants this Hydrogen for that purpose.

The whole thing is in an excited condition. In fact, I wonder whether the excited condition has anything to do with its very disturbing mordant properties? Is there any possibility of an action that way, because the thing is in that quivering condition. It would therefore eat its way into other things.

C. J. We found years ago when you were investigating Fluorine that he was always hammering with his point and that is why he eats his way into all substances. That is what made the thing so violent. He shoves his way through things.

C. W. L. Quite possibly he might, but I do not get the effect that you have drawn quite of the thing attached to one Oxygen only, it seems to me it is disturbed by the two Oxygens, that it is just because of that. If you get it attached to one, then there would be a Carbon streaming out into the air dissatisfied.

Tartaric Acid, $(COOH.CHOH)_2$, *p. 317*

C. J. We have two Carbon atoms; then we have here the Hydrogen over two funnels; and then there is an Oxygen and Hydrogen there and then you have got another Oxygen.

C. W. L. You are sure you have got this the right way up? I have a thing like a mushroom over here at each end. But wait a minute, I want to see how this mushroom is built.

C. J. This formation we know. That is the Hydroxyl.

C. W. L. If your mushroom is top and bottom that is the thing we have got. Wait a minute, I think I can work that.

Let me see; how did I start, by building up that thing. Two Carbons only had I to start with? What is the simplest form of that?

C. J The simplest form is Ethane.

C. W. L. And when you get the two Carbons you get Hydrogen round them.

C. J. The two funnels from each Carbon interlock.

C. W. L. That central arrangement seems to be the same, but I have got these two queer caps. What is the intermediate stage? What should I have had there if I had not this cap? Just Hydrogen? or Hydroxyl?

The Carbons are attached to the Hydrogen when you let the thing alone, but when this Oxygen comes in it makes a different effect and I have to try to sort it out and first of all to hold it still. These are the Anu from the Carbon, but that arrangement is not quite the same. Now wait a bit, Yes, it rushes through here. It turns those wide apart. Now, where is the rest of it gone? Hydrogen has not all those valences. Now, I have got him. At present he seems to sort of stream all over there. I think the Hydrogen is almost practically entirely broken up. I have got two of him.

You have your Carbon funnels radiating out, but much more than you have drawn them.

Then down here you have some rocketing out in the same way? Then here are two three's of Hydrogen lying in between here and pushing these things apart. They operate towards the central body in some way. You know there is a central body there. You have got that idea. The two push these apart. There are four more threes kicking about somewhere.

C. J. Certainly there are four more, and where are they?

C. W. L. They are lying somewhere here.

C. J. One over each?

C. W. L. Well, if it is one over each there is also one in the middle. Do you see what I mean? But those are separate Anu. They are not threes. The whole thing is a three, but it is like that. But it is your three only. This business has pushed the two things apart so the effect I get when it revolves is quite a rounded cap much like a mushroom moving round on a stick. The thing is like that and it is all going round this way.

They must be male and female. It is curious the distortion of this thing, making it curve. It looks like a cone on the top of a stick.

You see you are joining together a number of things here which are all of them obstinate. Oxygen is a thing which will not readily give way and Carbon is another thing which also retains its funnel and its position. And so there is a considerable strain about it all.

C. J. I should like to be quite clear as to this Oxygen here. You remember I have Oxygen as a bar in Hydroxl. Is that the same thing here?

C. W. L. Yes, he is spilling things down funnels all right. There is a slight tendency to curvature, but very little.

Maleic Acid, $C_2H_2(COOH)$, *p. 319*

C. W. L. This appears to be one of the type in which Oxygens point to each other and are a little flattened. The Oxygens come nearer to one another than they naturally would. This should be a stronger link between the Carbon than there ordinarily is. In this case you have a double link between Carbons. There are four funnels called into play instead of two and they are somewhat slewed sideways; to allow of that the Carbon atoms are a little out of shape.

As you had it before the ends faced squarely and they fitted in a sort of arch. But now the COOH groups being at an angle that way, the funnels are a little bit bent. But I should say it was a much stronger link than the other of the Tartaric Acid scheme, unless the distortion of the atoms works against that. It may be they are always pulling to get straight again.

C. J. Is the end as I have drawn it?

C. W. L. More or less it is like that.

C. J. I want to see how the Carbon looks?

C. W. L. The Carbons are clear enough. The other things are twirling round, but still if you stop it, it is all a mist.

Phenol, C_6H_5OH, *p. 323*

C. J. In Phenol there is an OH group at the corner, not the top, otherwise everything is the same as in Benzene.

C. W. L. This is one of those octagonal things which look like a six-sided ring. Focus your sight and see if you can see. It is not straight but it seems as if the ring were pulled askew. The OH group is not at the top. There is no north, east, south and west.

C. J. Cannot you get in front of him and say that the OH is on the right top corner?

C. W. L. I can't get him like that because these things are not straight but swerving. They are asymmetrical. Is it possible to grasp the idea that the difference in these things is not in the atoms but the way in which they lie in reference to the currents?

If you revolve the whole thing in the same plane the centre is no longer horizontal to the plane of the motion, but just a little askew. Do you get the idea? The Carbon to which the Oxygen is attached is askew, therefore instead of the lines of force lying straight, in relation to one another, or at right angles, it is as though you made a diagram and someone sat on it and slightly bent it.

In this case that flow of force is affected because the whole molecule is a little askew and it is as if it was bent round a little. The whole thing is tilted, so when it revolves it wobbles. It is off its balance.

C. J. What happens when the Phenol loses its Oxygen?

C. W. L. He becomes straight.
Look at the Phenol in among the water. There are only comparatively few of them, I should say not more than a million in that whole bottle. The water molecules are roundish things. Can you see the Phenol among the water? Hold a little in your mouth for a minute; can you get inside your head enough to see?
It is very odd; the Phenol has a distinct rudiment of sensation.

Mr. Leadbeater touched the top of the bottle of Phenol, or Carbolic Acid, with his finger, smelt it, and then touched his gum with it. Evidently there was some point of infection in his gum, for as he touched the spot with the Phenol something happened that made him laugh. On my inquiring, he said that the Oxygen left the Hydrogen to do its work of disinfection. But, as it left, it experienced a tiny thrill of delight, for the Oxygen had been held as a prisoner in the Hydroxyl group. But when the opportunity came to break the bondage and be free once again there was a clear sense of relief, of duty done, and furthermore the sense "Now I can die in peace". The feeling is very minute but there is an interesting side to all this; the side of the feelings of the chemicals involved.

Hydroquinone. $C_6H_4(OH)_2$, *p. 324*

C. W. L. The Oxygen is at the top and bottom. How do you keep him from floating away?

C. J. He is linked: just as in Phenol. The Oxygen was tacked on and it stayed.

C. W. L. There is Hydrogen as well as Oxygen. This fellow at any rate stands upright.

C. J. He has a float at the bottom. He ought to be in motion. He is pushing up. It is the middle that really holds the thing, I believe.

C. W. L. The middle of what? The middle of the molecule?
Now this Hydroquinone is quite different from Phenol. One thing happens with this, that your original cigar or Octahedron whatever you call it is elongated.

C. J. Is this thing elongated?

C. W. L. Yes, somewhat elongated. It is still an Octahedron, but it is a longer Octahedron. This has only one Octahedron, but an Oxygen on the top and the other at the bottom.

C. J. Two Oxygens pulling appear to elongate the whole thing.

C. W. L. Perhaps that is really all they do.

Benzaldehyde, C_6H_5CHO, *p. 325*

C. W. L. I seem to have him with a kind of wart. The Carbons are not perfect Carbons. The centre is all right, but this wart at one side is rather complicated. It is like some queer unusual growth. It is not flat like that. Those little Hydrogen balls seem out of place.

C. J. Does the Oxygen come in front of them there and do the others tack on?

C. W. L. There are three funnels at the angles of a triangle, but on a different plane, sticking up.

C. J. Parallel to each other?

C. W. L. One at each angle of a triangle. Those four other funnels lie flat. But there are these little Hydrogen balls dodging in and out. In all those others they came comfortably and meekly opposite the end of the funnel. But these don't seem to do that. I can't locate one to each funnel.

C. J. You will have one up here and one there?

C. W. L. I think I can see how it is. The four funnels that lie flat don't seem to have any balls. It looks to me as though the fact that they had not in some way affects the others.

C. J. A sort of tug between the two sets of them?

C. W. L. That is it, practically. I have my three Hydrogen balls at the top and three at the bottom, only they are not so static, not quiet.

Salicylic Acid, $C_6H_4COOH.OH$, p. 327

C. J. Here we have COOH and OH.

C. W. L. It is a little like Benzaldehyde but here I have another Oxygen which interferes with the arrangement.

C. J. How does the third Oxygen come in?

C. W. L. The molecule is spinning. You have to hold it still and then you have to be careful that you do not spoil its shape. I am always afraid of disturbing the things because I must stop their motion in order to give an idea of them. Let me see. I thought I got a glimpse of it then. I think when I get it sorted out the complexity is perhaps more apparent than real. You say you add another Oxygen and then there is apparently a Hydrogen which has appeared from somewhere holding the two ends of the Oxygen much as it does in Benzaldehyde.

C. J. I think we have only added a Hydroxyl. How do the extra Oxygens dispose themselves?

C. W. L. Much as you had them just now in Benzaldehyde. If you could add a third to these you would have them equidistant. Then there are the Hydrogens floating at the end.
The five Carbons are all the same; it is only this one corner which seems to me out. And I think it is differently arranged in different cases.
There is one of these things where the things tacked on here had two Oxygens.

C. J. Otherwise it was the same?

C. W. L. I am not sure of that, but it had two Oxygens here side by side, as it were. And between those Oxygens there is some other floating material. Then the mushroom and—I don't know, I suppose I must be stupid. I have found things in which some of these affairs were stuck on. This particular one is COOH plus OH. I have had him before, the COOH made the mushroom.

C. J. But of the chain series?

C. W. L. One of the things sticking on—what was it we had sticking on, Benzaldehyde?

C. J. CHO.

C. W. L. CHO, only there are two more Oxygens and a Hydrogen. But there is a difference here because in that mushroom arrangement there was a mushroom at each end. I do not see how there can be that here.

C. J. There is not; it is only in one corner.

C. W. L. That is an entirely different thing.

C. J. And that mushroom was in a chain formation.

C. W. L. Then what of this other thing which has its Oxygens as pillars in the middle?

C. J. I suppose it is another variant of Salicylic Acid.

Pyridine, C_5H_5N, p. 329

C. J. Here is Pyridine.

C. W. L. It is Benzene, except that in one corner it is Nitrogen.
He is a very sluggish creature. You won't get him to alter his shape much.

C. J. If the Nitrogen just sticks here that is all right.

C. W. L. But you have to do something with these six funnels.

C. J. There are not six funnels; there is no Carbon.

C. W. L. Then that is comparatively easy.

C. J. No, because with this arrangement, the twelve things there, the grand centre, gets knocked out.

C. W. L. Either you have a different or defective centre or you get something out of that Nitrogen. Yes. Well now, Nitrogen has a balloon arrangement and he has a queer thing lying underneath him, some kind of a dish. Has Nitrogen any valences in particular?

C. J. He might be either three or five.

C. W. L. What I am trying to make out is how he sticks on. Apparently he takes the place

of the Carbon and each Carbon gives two of his funnels to that central thing.

C. J. Unless the grand centre is changed.

C. W. L. The grand centre must still have power to hold. As I see the thing Nitrogen looks like a pear drop, but looks out of place and he is distorting the whole thing to some extent. Now, let me look at the Nitrogen—there is his balloon, (N 110) and there is his dish (N 63).

C. J. And what about his two supports at the bottom?

C. W. L. Wait a minute; there are two bodies, 2N24.

C. J. Two large spheres inside each of which you find four balls. Those two must be the link. They must have gone into the centre.
The centre is all different.

C. W. L. Well, it is a skew-looking centre; that part of Nitrogen has gone into that central ball of ours.

C. J. That central ball is composed of twelve spheres. Evidently two of these take the place of two Carbon funnels.

C. W. L. Yes, those two twenty-fours do take the place of the Carbon funnels, but they make it look a little asymmetric.

C. J. In the grand centre of Benzene there would be six loose Anu and here there will only be five. You must put in another loose Anu.

C. W. L. I don't see it.

C. J. There are only five Anu then circling round?

C. W. L. I can make out only five.

C. J. The whole grand centre bulges out?

C. W. L. Rather I think it caves in. This corner of it, this side of it is not satisfactory. It has been dented so to speak. There are not quite so many Anu somehow as there were.

C. J. Minus just a small number. Does it make a little flat place?

C. W. L. The thing is not so perfect.

C. J. Are these two balls contiguous?

C. W. L. Yes, they are contiguous, I think. It is as it was before except that these two things seem smaller and don't fully fill their place and also the fact that there is one missing inside probably upsets matters. It is a ball dented in one place. I do not like this irregular asymmetrical thing.

C. J. It surprises me that it is stable?

C. W. L. Well, yes it is stable. The rest of it is Carbon. This central block, the rest of it has attractive power and holds these. I mean they over-power these things, but it is a weakness in it, a weak spot, it looks to me.

A and B Napthol, $C_{10}H_7OH$, p. 331

C. J. This is Napthol.

C. W. L. You see the difficulty about this thing is that there is really no up or down for all these things. There is a sort of gravity, a current perhaps which keeps them usually lying in one way, but you have only to find the way and you can see all round it. You may say that it has a way it more commonly lies.

C. J. In the Alpha Napthol the OH is in the top bunch of funnels. In Beta Napthol it is in one of the side bunches.

C. W. L. You mean the number of atoms is the same, but the thing is differently arranged? I can't see how they can know that. This corner will be equally a Carbon —three-fourths of a Carbon. The colour is different.

C. J. The difference of colour will be due to the packing of it as crystals and then the way that the light gets broken up. We are not following up crystallization.

C. W. L. You see, we are coming into touch now with some things which are quite different from all those we tackled before, and they are different, in what is to me a very unpleasant way, in looking at them.

C. J. Because they have not got a head or a tail?

C. W. L. They give me a very uncomfortable impression of distortion, of very great strain. Everything with which we have had to deal before has had a certain symmetry. These things are asymmetrical in some weird way. It gives one an impression of unnaturalness. I do

not know whether these things exist in Nature or whether they are made, so to speak—whether they exist in Nature made by the Logos or whether they exist only when made by men. Could that be so? Can man make anything which does not exist in Nature?

C. J. Yes, they make lots of things.

C. W. L. The point rather is that the Oxygen ought to bring that side of the thing to the top.

C. J. It doesn't. I would like to know if in this corner the funnels instead of being flat twist the Oxygen round so that the Oxygen is like that and stands at right angles. Here he lies horizontally. At that side is it at the top?

C. W. L. How can anything like Oxygen be anywhere than at the top?

C. J. No, don't make it go to the top. It does not do that.

C. W. L. The thing must rotate differently. How many Carbon atoms altogether?

C. J. In the molecule there are ten Carbons altogether.

C. W. L. This thing is attached to one of those Carbons off in a corner.

C. J. That is all.

C. W. L. Horrid, uncomfortable thing. I can't make it fit in. There is something wrong.

C. J. Have you got hold of the corner where the Oxygen is hanging?

C. W. L. You see I have to try it at all sorts of angles, and I have not yet got one that looks like your arrangement.

C. J. But in what way is the Beta Napthol corner different from that of the Alpha? The Alpha was quite clear; the Oxygen was floating on the cushion of force from the funnels.

C. W. L. Yes, so I think is this.

The thing is a cohesive whole. The whole molecule is leaning over very roughly. The impression given is that the Oxygen is a sort of balloon filled with Hydrogen, or something like that, because it is somehow pulling the thing out of shape. It is not straight up and down with the earth current.

This thing is stretched to my side. It is all askew. It is dragged so that it no longer lies flat along the outlying current of force.

C. J. The whole thing?

C. W. L. I think the whole thing is a bit askew, but this one, the Beta Naphthol, is more askew.

C. J. But is it the same as at the top?

C. W. L. It is more to one side.

This thing is like two rods tied together, but on one of the rods is a wart and that wart disturbs the action. Those two things when left to themselves go round like that and keep perfectly straight, but when you have got the OH the molecule is not quite so straight. This Beta Naphthol is very much worse than that. He is askew like that, pulling a little away and as he goes round he wobbles.

Indigo $(C_6H_4NH.CO.C.)_2$, *p. 332*

C. J. Here is Indigo. There is a CO and an NH group. How is the NH attached?

C. W. L. There is a Nitrogen balloon in the middle and the other parts of the Nitrogen circling round.

Those two Carbons will attach themselves as usual and that will take up two valences. One valence is taken up with the Hydrogen.

This Nitrogen will hold his Hydrogen at the top of him in order that he may hold the Carbons at each side. He has no funnels; he does not work in an ordinary way. He floats looking like a bottle. I do not think he does divide his Hydrogen. I think he has it on the top.

C. J. Arranged on the top?

C. W. L. Straight on end. How do the valences act? It looks as though they were coming out of the balloon. He has not any funnels that he turns towards anything. It appears to work out of his balloon. He is sort of self-contained like a solar system in himself. The balloon draws down towards that dish below it. I think the balloon is the active part of him. This seems to be the important

part and it seems he is less drawn towards this plate, because he sends a little kind of cap up there which is probably holding the Hydrogen, and then he stretches out two hand-like things and those are attached to the Carbons. This thing is linked together. It has a peculiar outline and this thing bulges out like an amoeba and I think they have drawn it in a little to make room for all those. He is spreading from a balloon into a queer truncated cross. Now this is small; these are larger. It is more a vague swelling.

C. J. What about the bottom thing, the CO?

C. W. L. Is there no centre?

C. J. The grand centre is this thing.

C. W. L. It will take two of his valences to attach him to the Oxygen. You see he has to hold himself on to his Oxygen. That funnel and that funnel will be occupied with that. That is only one valence. Those two would make one valence going up one line and those two would make the other.

C. J. You would have two funnels there. I don't for the moment see how the Oxygen holds the Carbon. You see the Oxygen must hold two of these. As they are drawn it looks as though it would be very much round a corner.

That must be how his valences hold themselves. I have got two of them going flat. How are the other funnels linked to the Carbon?

C. W. L. It looks to me as though of these two, one is a positive and one a negative. What I can't make out is how these two fasten on to the top of the Oxygen, when they appear to be facing away from it, and how these two to the bottom of the Oxygen. The whole thing appears to be pulled out of shape. As far as I can get it from that little tangle I think that is the scheme, that instead of lying flat on the top of the Oxygen, you might let it drop over the Oxygen. Then here and there those are a pair at both ends of the Oxygen and they come together and make a link. There is the Hydrogen over there and these two come and make a link over here, and these two bend over so that they are much nearer the Oxygen.

It is almost as though one turned over that batch of papers so that not only this fellow is facing towards the Oxygen but also that, with a little bending each way. So that instead of that being a flat thing it is a curved thing. They might be floating lying across the mouth of that, but instead of that they are all drooping over more or less, these bending over here and the others bending over the Oxygen.

The Oxygen is standing up. That is what he appears to me to be doing. He stands up like that. Of the four, one funnel sticks out towards that Carbon and another aims towards that, and these two aim down rather like that.

C. J. What about these bottom funnels?

C. W. L. The Oxygen is in the centre of this side. One aims from here at this and really they are so close together the distance here is great as compared to the Oxygen. If you want you can make a representation to scale but your Oxygen would be a little beastie like that and your Carbon would be a long way away. A line coming from the top of your Oxygen would diverge so very slightly. Those two are really like one stream.

C. J. The Oxygen does not stand in the middle of a straight line?

C. W. L. No, it is a dip down. It depends upon the way you look at it. If you look at it from above you would see them in a straight line. In all these cases we have to face the fact that they do not lie in a plane like that. That makes it look all different. In trying to look them up you find you have to manœuvre and put them in position in order to have them looking like a drawing.

Note.—All the observations were illustrated by sketches. It is from these original drawings, as well as from the notes, that the diagrams given in this book were constructed as accurately as possible.

The disintegration of the Elements

When the investigations, begun in 1895, were continued in 1907 at Weisser-Hirsch, the work was divided, C. W. Leadbeater making the detailed diagrams of each element, and Annie Besant concentrating on the work of breaking up each element through the various sub-planes, resolving them finally into separate Anu. She made sketches of these, seated cross-legged on a rug with a pad on her lap, in the woods of Weisser-Hirsch. Her original diagrams, done in pencil, are at Adyar.

The work was so novel that it never occurred to me till years afterwards that there was a great gap in the work done by her. All the groups are moving in space in *three* dimensions, while she has drawn them on paper as if they were only on the surface of a plane. It was many years later I realized that I should have supplied her in 1907 with a schematic diagram, so that she could draw the movements of the groups in three dimensions. Following is such a diagram made by me, but of course long years after she had done the work.

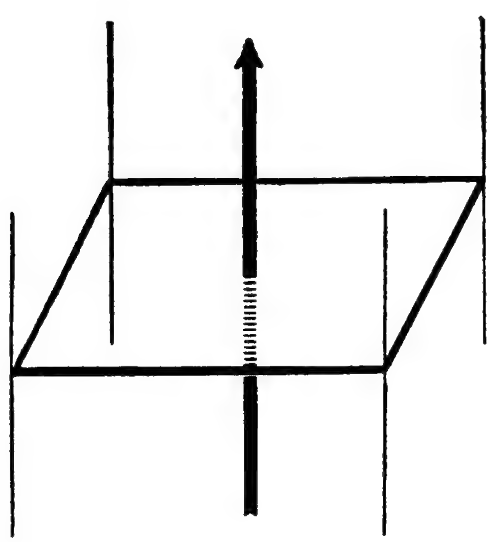


FIG. 224. DIAGRAM FOR THREE DIMENSIONAL DRAWING

Procedure to produce Invisibility

C. W. Leadbeater once informed me that if a person or object stood in front of one, it was possible to make it appear as if he or it was not there, by causing the light vibrations from behind to bend round and meet again in front. For this it would be necessary to make some adjustment of the ether, so that the light rays would bend, as needed.

Smell

There being some citronella on a table near by the question was asked what happens when one smells. Essential oils are complicated structures. Therefore, is smell produced by the molecule as a whole, or by parts of it when they impinge on the nerve ?

The reply, after smelling citronella, is that it breaks up into molecules or parts. A few of these parts awaken response from the nerve ends. They wake up the nerve ends. The vibrations of these particles are pleasing and wake up the nerve, which then absorbs them as food. In citronella there are at least two different types which stir up the nerve ends. The nerve ends seem hungry, and anything with scent wakes them up, and the particles are absorbed like food. There are many phenomena which happen, which would be worth while careful detailed investigation.

Orange peel was then smelt. " I appear to have vast numbers of these nerve ends, and they respond to different types of vibrations. Orange stirs up the ends which did not respond to citronella. Some ends are not stirred up by either." C. W. L. did not see why.

Iodine was smelt and was described as a savage thing. The nerves break up Iodine and absorb part of it and reject the rest.

Sal volatile was examined.

Sandalwood smell is soothing and steadying and plays a sort of tune on the ends of nerves. Request was made for some poison, which could be smelt in order to see if afterwards the nerves which are affected are restored by smelling an agreeable thing. Unfortunately, no poison was on hand for the purpose. Salts of lemon was produced, but has no smell. Similarly, calomel. That also has no smell. A bit of calomel was put on the tongue. It was noted as dissolving and the calomel making various compounds.

C. W. L. said that test after test repeated constantly would be necessary to find out the effects of these various substances. The difficulty is to find out which effect is the cause of another

effect. He believed that a great department of inquiry is awaiting in the future along this line, but it has to be very patient and prolonged.

The Cancer cell

On examining the cancer cell Mr. Leadbeater observed that it is exactly like the normal cell, except that it is an enantiomorph, a looking-glass image of it. "It was," said the investigator, "as if a right-hand glove were to be drawn inside out, to make a left-hand glove." He did not know what caused this inversion and no virus was sought for. When a cell starts this inversion, which is easily observed from the fourth-dimensional view, it acts explosively and seems to affect other cells and make them invert also.

The Smallpox germ

Mr. Leadbeater observed my arm which had been vaccinated. He said:

There is a mass of infinitesimally small things like a round ruler. It is very active. It is far more akin to the animal kingdom than many other bacteria, which appear more akin to the vegetable kingdom.

The white corpuscle swallows these round bodies, it then swells and bursts and disintegrates. But there are also other things like cheese-mites or tiny beetles. They are propagating at an enormous rate; but they also die. Now happens a curious thing; they leave behind them, by secreting or by disintegrating, something that is poisonous to other creatures. The round bodies are poisoning the blood; they are swimming in a foul stinking morass. But how do the cheese-mites happen to be at the wound?

Before the introduction of the smallpox germ they exist in the blood, but in a different condition. They exist in a kind of egg-shape. They are in my own blood. They are in the blood normally. But when a sore is caused by the introduction of the smallpox germ, the eggs are stimulated into activity. There is an intermediate stage between the egg and the cheese-mite, when it has the appearance of an ugly crustacean. Then afterwards it blossoms out into the cheese-mite.

These cheese-mites attack the smallpox germs (the round bodies). They are like tiny glass cylinders. A cheese-mite take into itself several of these; it looks as if it dissolves them, that is, unites with them. It takes in too many and bursts. But the two have chemically affected one another, and somehow out of the wreck of it all something is produced which apparently is poisonous to the germ. When the poison comes in contact with the germ, the latter curls up and collapses. The germ is like a little rod of transparent glass, and it dissolves.

In reply to the question "How did the eggs get into the blood," C. W. L. said: "I am presumably drawing them in with the breath. How do they get into the blood? Through the lungs I should say. They are like unfertilized eggs; they drift in and out of the body."

C. J. A kind of etheric amœba in the atmosphere?

C. W. L. They are floating about. They increase enormously in number when they are awakened.

C. J. Do they conjugate?

C. W. L. Individual cheese-mites do not get together to conjugate, so far as I can see. There are enormous numbers of these microscopic eggs.

C. J. Whence come the mites?

C. W. L. I am on the track of the thing. There are two brands of mites, I suppose male and female. A vast mass of eggs seems to exist—presumably coming from the female. Then, it is as if a shadow fell upon them, and they burst out and live. There are some kinds of fish that propagate in some queer way like that. It is as if the other variety of cheese-mites threw a veil over the eggs. But there must first be some peculiar chemical action produced in the blood to cause this breeding and blending.

But dozens, hundreds of varieties of tiny creatures exist in the atmosphere, and they are entering us all the time, and they pass through the system unaffected. They do not seem to matter so long as we are healthy. But if something happens to us, they seem to develop.

Arthritis

At one time C. W. L. had a very painful time with arthritis. He often watched what was happening and noted that, when the pain was most

acute, myriads of microbes, which he described as "arrow-headed," had their heads imbedded, all packed thick, in the covering of the nerve, as if devouring it. It was at this period that the pain was most violent and insupportable. Then came later a period of duller pain, and at this time the microbes had disappeared. But there was a brown deposit on the nerves where the microbes had been. Whether the brown deposit was the disintegrated microbes or not, was not investigated. It was not possible to determine whether these microbes were ultra-microscopic, because there was no microbe of ascertained size with which to compare. When the infinitesimally minute is magnified by clairvoyant power, it can be magnified to various sizes, but its relative size compared to other things cannot be determined unless some standard also is taken.

Neuritis

In 1912 one of our friends was suffering very badly from neuritis in the arm. C. W. L. examining the nerve described its condition as follows: Each nerve has a coating of etheric matter. In this case of neuritis, this nerve coating was eaten away, and there were gaps in the coating, in the same kind of way there are gaps or empty spaces when a film of oil floating on water is broken up so as to leave water spaces in the oil súrface. The sufferer's nerve was exposed thus in various places. As there was a brown deposit round the edge of the exposed spaces, the probability seemed to be that some trouble had occurred, and that the exposure was due to the presence of the brown material which was saltish in taste. The person suffering from neuritis began at this time to take some lithia tablets which helped to lessen the pain. A question not followed up was, whether in the tabloids there were any etheric particles which could be utilized by the body to cover up the broken spaces of the nerve covering, or whether they merely helped to dissolve the brown sediment.

Rheumatic Fever

In 1924 C. W. Leadbeater suffered acutely from a very violent onset of rheumatic fever, with all the joints painfully swollen. His suffering at times was intense. Once he examined clairvoyantly what was happening, and in describing it to me said there seemed to be certain "arrow-headed creatures" (evidently bacteria) which attacked in cohorts the edge of the nerve and consumed it. It was this boring into the nerve with the pointed heads by the bacteria which caused the sharp pain.

Paralysis

A case was noted of a friend of C. W. L., who, he said, would have an attack if he did not take care. C. W. L. came to this conclusion, because a curious dislocation of parts of the etheric body from the denser body had begun to appear. Were this incipient dislocation to proceed, paralysis would be the result. The friend did not have an attack, and so presumably he followed the warnings of a nervous breakdown, and warded it off.

An interesting case of an unusual form of creeping paralysis was also examined. In this case, the patient had had a slight spinal injury as a girl, when riding. The injury in no way incapacitated her. But slowly a form of paralysis affecting the limbs from the hip down began to manifest itself, till year after year the limbs, including the arms also, became steadily more and more out of control of the will. An investigation of this case showed that the root of the trouble was not injured nerves, though that may have been the case. At the time of examination, which was several years after the original accident, the cause of the incipient paralysis was seen in the condition of the cells in a centre of the brain. Each cell there, when examined, was abnormal in its electric response among its own constituents. Within the cell, there exist certain groups which have positive and negative electrical quality, and normally to an external application of electricity they respond instantly with the usual repulsion of like to like. In the case, however, of these particular cells, the electric response was greatly dulled, and the repulsion was slower. This in some way interfered with the proper control through the nerves of the muscles of the limbs involved.

Epilepsy

Thirty years ago, C. W. L. investigated a case of epilepsy, and noted what happened at the time

of an attack. He noted that all at once the flow of etheric currents from the brain was suddenly broken, just as an electric light goes out when a fuse is burnt out. This disconnection of the currents caused the attack. On a superficial glance, he could see no particular reason for the brain disconnection at one moment rather than another.

Electricity and Prana

Several times C. W. L. has watched to see if there was any change produced in the Prana when electricity was poured into the body. He has himself allowed a high frequency current of over 100,000 volts to pass through him. Not the slightest effect was noted on the flow of Pranic currents. In fact, the two types of forces, Prana and electricity, were of such totally different qualities that neither affected the other. Hence an electric current in no way added Prana or vitality to the body, nor did it in any way interfere with its flow. So far as was noted, during the passage of the high-frequency current, the function of the nerves did not seem to be affected. But it should be noted here that no specific investigation was made, but only a general observation.

The Flow of Forces

Adyar
18th October, 1932.

C. J. Last night as I was doing the first big diagram of the Dumb-bells, I noted the body of six Anu in the middle in the connecting rod of Sodium was curious in the alignment in the placing of the dots. Looking up the breaking up by Dr. Besant in the diagrams of 1907, I see it is not a mistake. C. W. L., however, looked it up again and on the whole it seems better to put the two middle dots nearer. He stated those two spin faster than the rest.

Then I told him that as I had to write the brief article describing the funnels, I had to state what was the material of the funnel. I had not hitherto been able to get a clear statement on the matter. He went into it and discovered quite a new line of facts. First, however, the funnel, which is of course only a temporary affair, is composed of astral atomic matter which is pushed back by the movement of the things inside it.

Let me now write it out from my very hasty scribble jotted down as C. W. L. went on talking.

C. W. L. The funnel is astral matter pushed back, but also there is mental matter pushed back by the things inside the funnel. Besides the revolution of the funnels, the whole atom of course revolves. There are stages in this thing.

Under ordinary conditions the Anu floating in space exist in and among the Oxygen and Hydrogen atoms. Each of these two latter has its boundary wall but the Anu do not interpenetrate that wall.

C. J. Of what is the shell of the Oxygen atom composed? Something is surely pushed back?

C. W. L. There is a thing here I do not understand. I may see it in a moment.

Every physical thing has an astral counterpart. But the astral counterpart does not agree. The astral counterpart of Oxygen is not Oxygen. I never tried to separate these things before. The astral matter cannot penetrate that ovoid of Oxygen except in its atomic form, and even atomic astral matter does not interpenetrate tne Oxygen snakes. Astral atomic matter appears to be penetrating the chemical atom, but does not penetrate the funnels.

There is, nevertheless, something which does penetrate, possibly mental atomic matter. I will make some empty space, though I do not know what will happen, possibly an explosion of sorts.

C. J. That is, pure space with no atomic matter of any plane at all?

C. W. L. finds he cannot do that without coming to the bubbles.

I am going to the stratosphere. There are still Anu but they are far apart, look like miles apart compared to their size. What is between them? Astral atoms again, very far apart, and also mental atoms. How does light get across space?

The funnel is astral atomic matter pushed back. There are little things within the funnel which drive things out on their own account. They push out mental matter.

This is a new idea, but the chemical atom as a whole pushes back all ordinary astral matter, and that funnel pushes back even astral atomic matter. Mental matter can penetrate except some of the things inside the funnels. Where there is a definite centre even mental matter is pushed back.

C. W. L. took gold and examined first the connecting rod made of the two elipses. That pushes back astral atomic matter. But in the centre there is the grand affair of 16 pieces of Occultum, Au 33, and four groups. This middle sun certainly pushes back mental matter. It may be that as it is very hard, it is on the Buddhic level perhaps.

What is the difference between the Diamond and coal? Certainly the former is composed of 500 odd Carbons, whereas coal is in groups of twos and threes. The terrific holding power of the Carbons in the Diamond drives out a higher order of matter than do the Carbons in coal.

Any group that moves exceedingly rapidly seems to drive out higher matter so that it cannot interpenetrate.

If you melt gold, the nicely balanced relation of the leaves, Au 33, in the two elipses is upset. The general balanced co-ordination of the components of gold is upset so long as the gold is in a heated condition. When it is cooled again the co-ordination and the original configuration would be restored. In melting the metal the chemical atom becomes larger, spreading away more from the centre and therefore there is not the same cohesion.

All these forces are tangled up with the forces of the Anu itself, the force through from top to bottom and that through the spirals.

The Electron: The last Investigation

The last investigation was made on October 13th, 1933. A radio receiving set was used as we wished to find out what was the electron. It is not our Anu but might possibly be an astral atom. The valve, which is supposed to be throwing off streams of electrons, was examined.

Just as the work was suspended, Mr. Leadbeater thought that he had a glimpse of what lay at the back of the nature of positive and negative in electricity. It seemed as if this distinction went as far back as the nature of the "bubble" itself in Koilon. But he was tired and the work was suspended. I left for South America for a year. Next year Mr. Leadbeater passed away at the age of 87.

C. W. L., C. J., Mr. Zuurman.

(Globe with two metal plates inside, connected by a coiled filament)

C. J. heats a piece of ordinary iron.
First see what happens when a piece of iron is heated. What we want to know is—when hot, the ordinary theory is that the particles vibrate more rapidly. We want to know whether it sends off any emanations or any particles.

C. W. L. I do not think so, but it may presently when it gets hot.

C. J. Is the heat producing any change in the astral atmosphere round it?

C. W. L. Of course; everything—astral and physical—vibrates somewhat more strongly; but if you want to heat it enough to affect the astral matter, you will need . . . It makes very little difference to the astral.

C. J. The ordinary heating of this does not produce a discharge of particles?

C. W. L. It has not yet, but perhaps it may if you make it hot enough, because it is true that a thing sufficiently heated does burn away.

C. J. That is not the idea. Does it emanate these things? Do the electrons come off?

(The two metal plates and filament are heated)

C. J. Do you want only the plate heated?

Z. Only the plate. It is the filament which produces the electrons. I will remove one plate.

C. W. L. What is the electron like? How will we know it?

C. J. Here is something which we can make red hot. A needle. Now it is quite red hot. Does it throw off anything now?

C. W. L. I do not see that it is throwing off anything physical. Mind, it is causing radiations round it.

C. J. Of what?

C. W. L. All sorts of things. Everything that comes near it is affected by it.

C. J. Just as a hot current of air throws about leaves. Is the red-hot needle discharging a stream of anything?

C. W. L. Not out of itself, but it does heat the ether and everything else immediately around it. It is not causing any electric action.

C. J. Is it sending off parts of itself which we could call electrons?

C. W. L. I do not know what an electron is. There is nothing particular happening, except far more violent vibrations.

(Plate and filament brought)

C. J. You see the little M or V on the filament? When the filament is heated, then electrons flow in because this gets a current through. Then from the hot filament, it draws off particles. It causes the discharge of something that are called electrons. We can't test that because we have no current through here.

C. W. L. It is red hot already.

C. J. In that condition produce an electric current. Now examine what is happening inside. The positive will be drawing off from the hot filament a certain number of things.

(Go to radio near window)

C. W. L. Where is that grid arrangement inside?

Z. It is covered up; you can't see it.

(Current is turned on in machine)

C. W. L. Hot?

Z. A little bit.

C. W. L. The difference then is that electricity is running through that.

C. J. And running through that filament that is hot produces a pull of something that are called electrons.

C. W. L. It certainly creates a considerable disturbance all round it. Are these things radiating clean out through the machine?

C. J. Now what happens?

Z. They are discharged and go through the valve and back through—a continual flow of current.

C. W. L. What is it, the current that is going up and down the business that you showed us?

C. J. A negative current?

Z. Yes, but that has nothing to do with it.

C. J. It is merely to make the filament hot by the current. Another electric current, positive, makes this positive and draws over the negative particles in the filament.

C. W. L. There is a current; I do not know what it is. Whatever it is, it can sweep the ordinary Anu before it.

C. J. Anu of what?

C. W. L. Well, the ordinary Anu.

C. J. Where is this current?

C. W. L. It appears to be coming in, your ordinary electricity coming in.

C. J. That is in the grid, but that is very much like ordinary electricity going through the tungsten wire of a bulb.

Z. The current flows here always, except here one filament.

C. W. L. Flows across?

Z. Yes.

C. J. Between the grid and the plate?

Z. No, between the filament and the plate. The whole circle is closed except there.

C. W. L. When the electricity is flowing through, there is a vast amount of general activity all about there. What you want is to pick out from that general activity these things that you call electrons.

C. J. The gap between the filament and the plate?

C. W. L. Light is shining across.

C. J. What is it made of?

C. W. L. Something glowing, of course.

C. J. That is what we want to know.

C. W. L. Just between the filament and the one plate. Look here, just let me try another chair, in case of accidents. (Takes an arm chair.) Now then, I am going to hold that—this is where the President (Dr. Besant) would come in so usefully —in the same place physically, and then shoot up into the astral and look down at it. See here; it is not quite a real thing, it is a maya. The light shooting across is not really continuous at all. It gives that effect, like a whirling stick. Wait a minute. You are breaking up the ordinary Anu.

C. J. Into the astral?

C. W. L. Of course, into the primordial, into the Adi plane of bubbles, but they dart back in a moment (as astral atoms). We are watching something which I do not know how to count. It is taking place so rapidly you have to count in thousandths of seconds or millionths.

C. J. What is taking place?

C. W. L. This much. Your Anu breaks up and reforms, many times within a flash. The thing is not continuous at all, but looks as if it were.

C. J. One Anu after another gets disintegrated?

C. W. L. It is a very small interval, and yet in that interval they appear to disintegrate and come together on the other side probably a thousand times in a second or more.

C. J. But where are these Anu from?

C. W. L. They are being swept along by the current apparently. What have you done to the current? Have you slackened that current at all?

C. J. Are the Anu from the coating of the filament, the outermost sheath?

C. W. L. It is all happening so tremendously quickly. I am going to slow it down. I do not want to burst anything. Slow it down and see what happens. I thought at first that it was flowing in one way as a current; but if you slow it down a little, it does not appear to be doing that. It is really flowing backwards and forwards. It looks as though it were running one way, but it is like that (makes a motion) and then going on. Why is that, and what is it? You say these electrons ought to be streaming out somewhere?

C. J. Towards the middle of the plate from the filament.

C. W. L. That is where they are going. I had the impression that you thought they would radiate out of the machine. They do not.

C. J. In the middle of the plate with the current?

C. W. L. I am sorry, but as far as I can see they are flowing backwards and forwards with inconceivable rapidity; and one would almost say that it is only at intervals that one of them is caught and goes on. Does it delay the flow?

C. J. I do not know. Is it the Anu flowing backwards and forwards?

C. W. L. The Anu is disintegrated.

C. J. Is it the astral that is flowing backwards and forwards?

C. W. L. Yes.

C. J. Obviously what they call the electron is the astral atom. Our Anu is broken up into 49 astral atoms.

C. W. L. Yes, broken up into its constituent bubbles.

C. J. It is they that are flowing back and forth, and finally one gets absorbed in the current and goes along.

C. W. L. That is probably happening several hundred times in a second.

C. J. What are the rest? Where do they get discharged? Into the astral atmosphere?

C. W. L. They are kept in very violent motion.

(Shut off the current in the machine)

C. W. L. It has all gone back to its ordinary condition. I do not believe they have lost any electrons.

C. J. Slight loss? Now we will have the same position, but will put on the grid. It will have the effect of steadying that flowing back and forth.

(Try to get some broadcasting, but get only noise)

C. W. L. What makes that noise?

Z. The pump at the printing press, or power-house.

C. W. L. That is noise coming through the wire?

C. J. The grid is working now. What is it doing to the coming back and forth?

C. W. L. Wait a bit. The noise is coming through the machinery. So we ought to be able to see what is to be sent, even though the howls are fiendish. The grid, you say, modifies the noise?

C. J. The purpose of the grid is to get the rate higher or lower.

C. W. L. I should say that the grid was rather an obstruction.

C. J. It is intended to be.

Z. The grid discharges positive whichever current flows.

C. J. If the grid is positive, and since the plate is also positive, then the flow of electrons is more and more.

Z. When it is negative, then the flow is reduced.

(Turn off the noise. No music)

C. W. L. Current was flowing through. Here is another curious thing I did not notice before. Why does it split up your Anu? I think it not only splits him up, it sorts him out. There are positive and negative Anu. One goes on one side and the other on another. I want just to follow that. It is difficult for our thick-headed human conceptions to grasp that these things can take place at this amazing rapidity, not lightning but a hundred times that speed. It is sorting out negative and positive.

C. J. What does the negative do?

C. W. L. Goes on one side, and the other on the other.

C. J. But does it get absorbed into the plate?

C. W. L. Yes; it all comes together again. But wait a minute; what I am trying to see is whether by any of these actions you can change a positive Anu into a negative one, or a negative into a positive. I cannot be sure of that yet. But where is this solar system scheme that we are supposed to see—a negative atom going around a positive? Aren't we?

C. J. Well, leave these theories, if you please; and investigate and tell us what you see. We will build a theory. What is happening to the positive and negative Anu? What follows?

C. W. L. But it follows so desperately quickly that I cannot follow it. It takes some slowing down scheme; but in doing that I probably will affect it. A good deal depends on the rapidity of the vibration. Is this supposed to be hot?

Z. Yes.

C. W. L. Red hot?

Z. No; dark hot.

C. W. L. But it all looks to me like a blinding light. Now it is at your receiving station that these things are sorted somehow back into sound vibrations and all that. Aren't they?

Z. Yes; it is a confusing process. The first valve sends wave lengths. If I take the first valve, probably the process will be more simple.

C. J. What have you now?

Z. All three valves. I'll make it with one valve only.

C. W. L. The three valves would only intensify the process.

Z. The first one is a different process. It is all sorted out, the sound waves from the wave length of the station. Now there is only one valve.

C. W. L. When you have all three of them going on, from first to second they are strengthened, not altered.

C. J. What is "they"?

C. W. L. Anu, I suppose; but what I rather want to know is how this picking up is done, and what is the object of it. Do they come together in some different arrangement afterwards? But I do not quite

see that they do. Only it is so quick that you cannot very well follow it. I was certainly hoping that this process would change the positive into negative, and vice versa; but I cannot prove that it does. Wait a minute. I was trying to count the wretched things, slowing them down enormously, a thousand times, watching the number of male and female that went in, to see whether the numbers go out on the other side.

C. J. Went where?

C. W. L. Those flowing across.

C. J. And go back to the filament again?

C. W. L. No, no. Go into the plate.

Z. Filament to plate.

C. J. But before that they flow back and forth?

C. W. L. A hundred times before they are split perhaps. Remember that whirlpool at Niagara; some bits go round twenty times before they are swept away. It is like that, but a few million times faster. Where are these electrons of yours? Are they the little globes or balls of astral atoms, I wonder? But aren't they supposed to exist all over the place everywhere?

C. J. Yes.

C. W. L. These things do not; they are made for the occasion.

C. J. What causes the thing to flow back and forth?

C. W. L. I am not quite sure that the thing does not flow back and forth normally. Lightning does that.

C. J. There is one pull and the other. The filament negative and the plate positive, and it flows back and forth between them. You say, when the current is going through the wire, there is a series of astral atoms going through the outermost sheath, or is it a series of Anu?

C. W. L. Running along the outside of the wire, the ordinary electric wire.

C. J. It is a series of astral atoms that goes through?

C. W. L. I don't know that they would be necessarily astral. They would be the ordinary Anu, I think, but electrified, a strain set up at a particular angle.

C. J. Not in the filament but along the wire; there is a stream of ordinary Anu flowing under the sheath of the wire. Is that it?

C. W. L. But they are being swept along it, mind you. The Anu has no volition of its own.

C. J. Where from?

C. W. L. The electricity picks them up. We never see electricity. It is driving these things before it.

C. J. Does it pick up from the atmosphere the Anu everywhere?

C. W. L. Yes, and it is . . . there is another . . . probably fifty. See here. When you send an electric current through, you stir up all creation for an inch or two on each side of it, so to speak. Is that what you call the magnetic field?

C. J. Yes.

C. W. L. That is a different kind of reaction, a kind of backwash. How separate the effect of one thing from the effect of another? I do not think we can escape from the idea that there is a radiation at right angles to the wire.

C. J. Yes, that is inside. I would like, if you take two wires—positive and negative—can you see that in one wire there is one type of Anu going along, and in the other another?

C. W. L. You have one thing over, which is very much separate.

C. J. Which?

C. W. L. I can see it from here. It is that one which sets the light over the disc going. He is very much separate.

C. J. Now you can study the two lots. In these two, are there two separate sets of Anu?

Z. It is all one type of current going through there.

C. W. L. What do you consider you are sending along it?

Z. Maybe plus or minus; I don't know.

C. W. L. How can you know?

C. J. The easiest way to observe is in these two—this is plus, that is minus. Then you can sort it out.

C. W. L. You definitely have two separate things there. How do you separate them?

C. J. Better resume another time. Let's get on with the electron business where a positive thing comes along, going back through the bulb. Going out negative.

Z. Because you have got pressure there it is changed. We call it plus and minus. (Makes a diagram of a dynamo.) Here on the bulb is plus or minus.

C. J. That is your bulb. Here is a current going through this wire. How to change the plus to minus?

Z. The dynamo does it. By running in the magnetic field, one side becomes plus, and the other side minus. You get a sort of average. The average is the weight of pressure.

C. W. L. But it seems to me that there is a stream of things coming down from the astral, and a stream of things being sucked up. What the dynamo is doing is sucking up the other thing, and these two are sort of complementary. It is generating one type of current, drawing it from the astral, and the other time sucking up another type from below.

Z. Suppose you have one magnet very strong, just a single one. You move it along, there you have currents.

C. J. One type?

Z. No, plus and minus, both. The current goes in a certain direction that we call plus or minus, according to the way it goes.

C. J. Always you must have the earth as one pole?

Z. No. Since you close the wire into a circle, you have a current flowing.

C. W. L. Then the thing becomes magnetic?

Z. No, we have the magnet before.

C. W. L. That is where the current is made?

Z. Yes, because it flows.

C. J. Does it flow alternately?

Z. In one wire always the current is in a certain direction. The direction of the flow of the current changes.

C. W. L. What we have to find out is, what is the current itself? It may be the Divine Life for all we know.

Adyar, Madras, India,
10th November, 1932.

The following was written by Mr. C. W. Leadbeater after the conclusion of the main series of observations.

"The work on Occult Chemistry is finished at last; that is to say, one small section of it is finished—the special piece of work that the President (Dr. Besant) and I set ourselves to achieve when we began our investigations in 1895. Thirty-seven years it has taken, though we have been able to work at it only spasmodically, and what has been done during the last two years I have had to do with Raja's (C. Jinarājadāsa's) help. Raja from almost the very beginning has been our recorder, our calculator and draftsman, and without him we should never have succeeded even so far as we have. We have catalogued all known elements, and added half a dozen or so which are still undiscovered by science. We have classified them, and drawn the shapes of their chemical atoms; now it will be for our successors to make the deductions and try to formulate more definitely the great laws under which the Third Aspect of the Logos chooses to work. No one who has seen the orderly lines along which evolution progresses and the wonderful skill with which the combinations are made could possibly doubt the existence of a Great Plan and of the Great Architect of the Universe who is patiently working it all out."

THE PERIODIC LAW

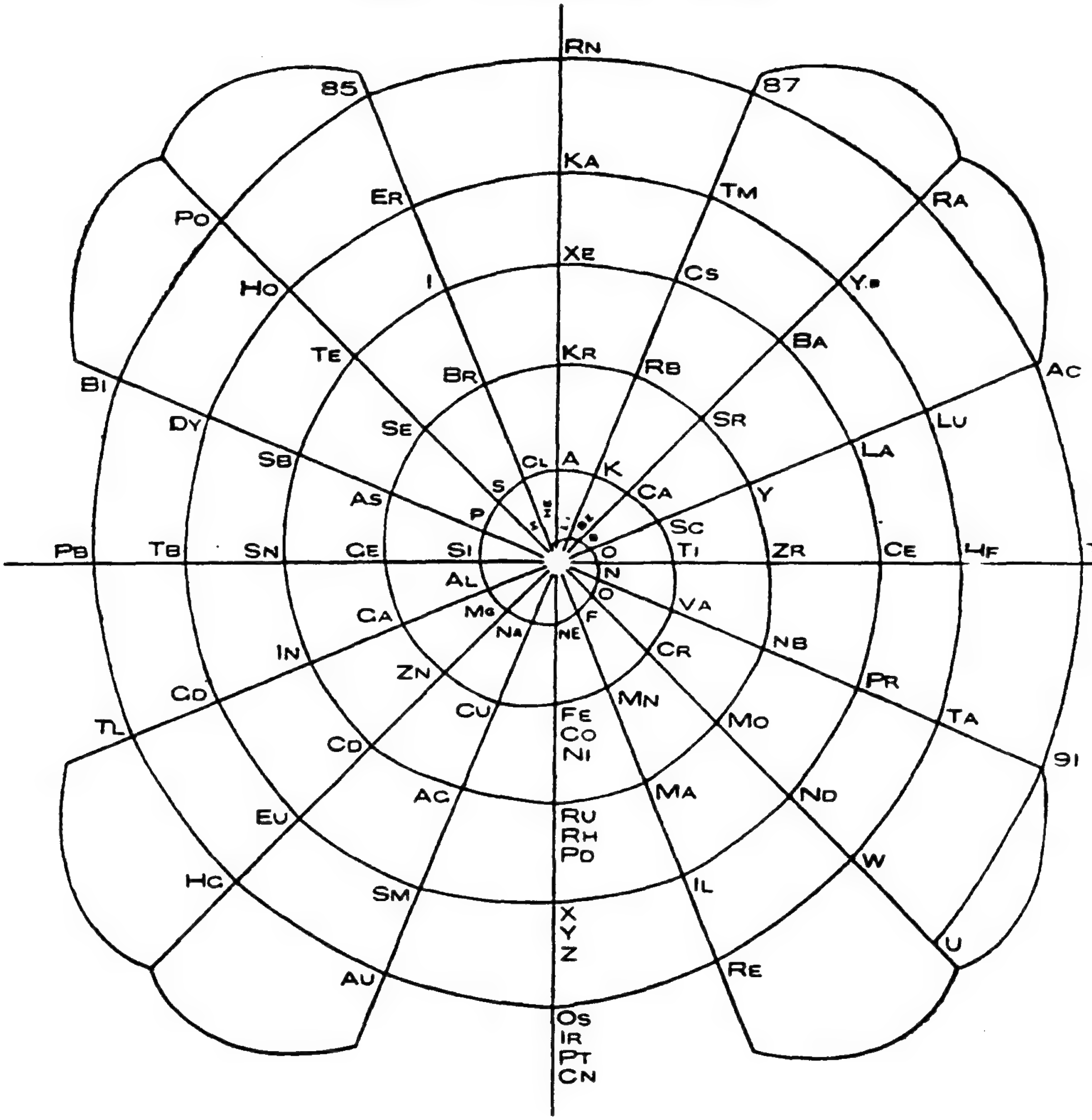


FIG. 225. SPIRAL REPRESENTATION OF THE PERIODIC LAW

FIG. 226. TETRAHEDRON, SHOWING FUNNELS AND SPIKES

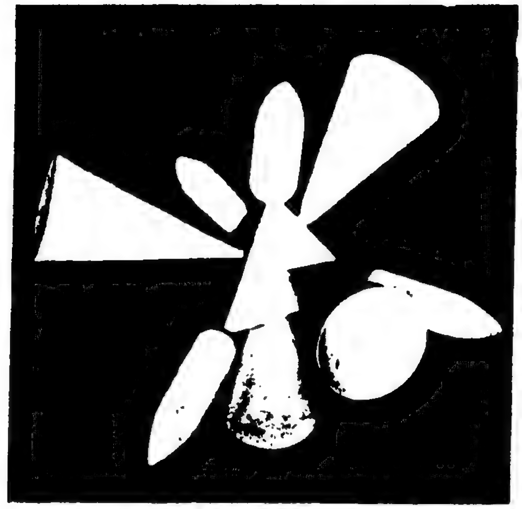


FIG. 227. CUBE, SHOWING FUNNELS AND SPIKES

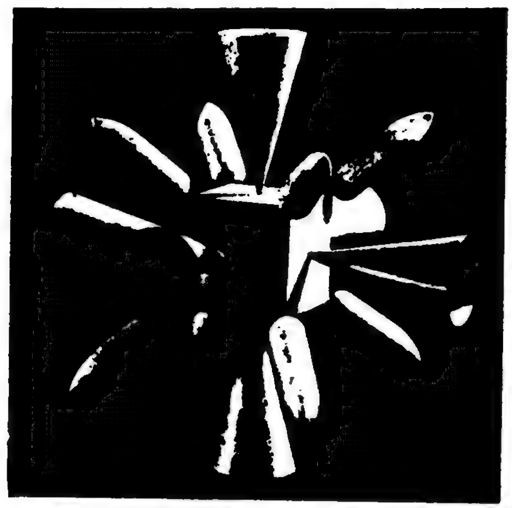
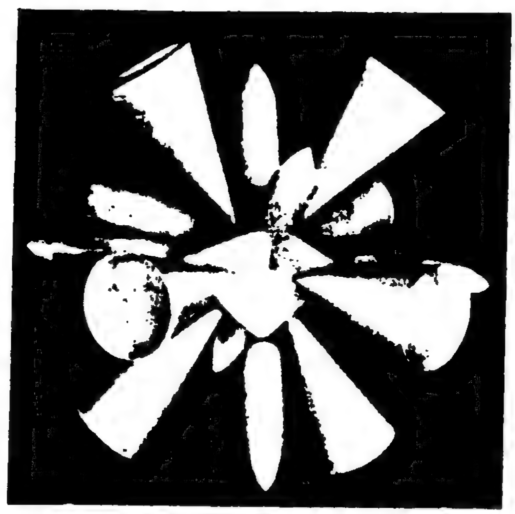


FIG. 228. OCTAHEDRON, SHOWING FUNNELS AND SPIKES



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ADDENDA

Fluorine. Mr. Leadbeater noted that Fluorine was in violent action, its point moving backwards and forwards like a piston. In this way it affects even glass.

Radium. Mr. Leadbeater did not observe any disintegration of the Radium atom as a whole. What appears to be disintegrated particles of Radium, as observed in Crookes' Spinthariscope, are in reality groups of E2 and E3 matter drawn in through the funnels, rotated and heated by the central sphere, and then violently shot out through the spikes.

Carbon. Mr. Leadbeater examined some Carbon which had formed part of the Carbon points of an arc lamp. It had been subjected to the action of electricity and raised to a very high temperature. He found that the eight funnels were not so close to the central part as before, and that the spirillae in the Anu had been aroused into greater activity, although not sufficiently to make a permanent change. He thought that the atoms thus affected might combine more easily than before.

ERRATA

Page 46. Fig. 20. On the E2 level of Ad 12 insert two 2's.

Page 88. Fig. 43*a*. There should be eleven, not ten, groups of two Anu between each group of seven Anu.

Page 123. Line 10. Read 4 Zn 20 instead of 3 Zn 20.

Page 204. Fig. 116. The Indium funnel B should contain two In 14 and one In 16—
In Thallium and Bismuth centres read Tl not Te.

Page 315. Line 1. Read Ethyl Alcohol instead of Ethane.

Pages 324, 326, 331. In Figs. 206, 208, 212 delete the six spheres of Hydrogen under the Hydroxyl Group.